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The London Conference

The 45th annual conference of the Institute of British Foundrymen opened yesterday under the presidency of Mr. P. H. Wilson, O.B.E., at the Café Royal, London. It has attracted a record registration of no fewer than 750. This is even larger than the great international congress of 1939, and is a concrete testimony to the interest now being taken in the technology of foundry practice. Mr. R. B. Templeton was elected president for 1948-49. He is the fifth to graduate from the ranks of the London Branch. Every president has a right to have "a bee in his bonnet." Invariably they are sensible "bees," and the new president's particular line is the thought that it is useless to make castings if they cannot be marketed to advantage. That is probably why in his erudite presidential address he suggested the voluntary amalgamation of some of the smaller foundries in any one area. The segregation of castings into the shops where they can be made to the best advantage is obviously and ultimately to be associated with marketing. The new vice-president, Mr. J. J. Sheehan, is the first graduate of an Irish university to be elected to that office, which normally carries with it the future occupancy of the chair of the Institute. He has achieved an international reputation as an authority on sand technology and has a reputation of being a pioneer of new foundry methods. The honours this year have mainly been won by Midlanders. To Mr. J. G. Pearce, the director of the British Cast Iron Research, went the E. J. Fox medal. The raising of his Association from a virtually derelict, third-rate information bureau to international recognition as the pre-eminent centre of research on cast iron was as well deserved as it was popular. Mr. L. W. Bolton was awarded the Oliver Stubbs medal. This, too, was both popular and well merited, for of all metallurgists it is surely this recipient who can, and does, take out the "meat" from abstruse research and presents it to ordinary foundrymen in an easily "digestible" form. This is a quality possessed by only too few. Only last week we commented on the excellence of the Paper by Mr. R. C. Shepherd, and this eulogy was endorsed by the Literary Committee, and with it the award of the British Foundry Medal. The Meritorious Services Medal was awarded to Mr. C. Lashly, M.C., the honorary secretary of the Newcastle Branch. Under his enlightened leadership the Branch has well serviced the difficult and specialised requirements of the North-East Coast foundries.

The annual report this year had special significance, for it showed that the step taken to increase the subscriptions was not merely timely, but essential. The decrease in the buying capacity of money affects technical institutes in exactly the same way as it does the cost of running a business. Foundrymen with but few exceptions, realising that relatively it costs no more than before the war, have confirmed their support. Membership continues to expand at an encouraging rate and at 4,117 constitutes a record. Finally, in congratulating the secretary and his staff on the excellence of the organisation of the conference, we should also like to pay a tribute to the dozens of London Branch members and their ladies who have devoted so much time and energy to the building up of such a complete and interesting programme of events. Then, too, the directors of various foundries, who are throwing open their works for inspection by the visitors, well deserve the thanks of the industry for the generous support they are according to this record-breaking conference.

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Cold Welding

The General Electric Company, Limited, of Magnet House, Kingsway, London, W.C.2, have sent us details of the process they have developed for the cold-welding of aluminium. In brief, the process is a method whereby ductile metals are welded by pressure alone, the pressure being applied to the work-pieces to be joined by means of specially designed dies which are mounted in a suitable tool, such as a hand-press.

At first sight, it seems remarkable that so simple a treatment should produce such a satisfactory weld. The technique involved, however, can be compared to the blacksmith's method of welding iron. In that process the metal is heated and thus made plastic so that it will flow when further worked by pressure or hammering. It seems, in fact, that a flow of material is essential to satisfactory welding.

Ductile metals can, however, be made to flow by the application of sufficient pressure, even when cold. Given a suitable arrangement of work-pieces and dies, application of pressure brings the work surfaces into close contact while the flow takes place so that they become solidly welded together.

Important Factors

Production of a satisfactory cold weld, however, depends upon two essential provisions. First, the work-pieces must be so treated that two uncontaminated metal surfaces can be brought into intimate contact between the dies. In other words, the oxide film on the surface of the aluminium must be removed, and a substantial part of the work carried out in the G.E.C. Research Laboratories was concerned with determining the best means of performing this operation.

Further, once the surfaces have been properly treated, the re-formation of the oxide film, although it begins at once, is not rapid. Therefore, provided the surfaces are kept clean, satisfactory welds can be made within 24 hours of such treatment. Cleanliness of the surfaces is extraordinarily critical, however, as even the contamination conveyed by handling will invariably prevent a weld from forming.

The second proviso is that the pressure must be applied over a comparatively narrow strip, and in such a manner that the metal can flow away from the weld at both sides. This desired state of affairs is achieved by applying the pressure between suitably constructed dies, and also imposes slight restrictions on the degree of complexity which these welds can take.

THE MINISTER OF EDUCATION has appointed a huge "National Advisory Council for Industry and Commerce." No fewer than 78 names are listed, and of these the following are prominent in foundry circles:—Dr. P. Dunsheath (W. T. Henley's Telegraph Works), Prof. W. R. Jones (president of the Wales and Monmouth Branch of the Institute of British Foundrymen), Dr. H. Schofield (Loughborough College), Sir Arthur Smout (President of the Institute of Metals), Sir A. P. M. Fleming (Metropolitan-Vickers), Mr. Gerald Steel (United Steel Companies), and Lt.-Gen. Sir Ronald Weeks.

Publications Received

Target—A Monthly Magazine. Published for the Economic Information Unit by the Central Office of Information, Norgeby House, Baker Street, London, W.1.

A "target" is a padded article carrying on its face a series of coloured concentric rings for proving the skill of archers. It is not really an objective, though it has been given this meaning through publicity for savings and other campaigns. However, the object of this publication is apparently to tell employers how best to explain to their employees the significance of their output in relation to national economy. By eulogising editorially the effort recently made by John Harper & Company, Limited, we expressed our approval of this type of effort. Yet we cannot believe that a monthly publication is needed to popularise it. We think that the issue of one good brochure would have established the basic principle and given sufficient examples to make industry conscious of the wisdom of taking such steps. "Target" has the format of a modern—that is, small size—daily newspaper and runs to eight pages. It was hard luck on the Editor that the centre of the first page carries a picture of one foot of conveyor belting x inches wide, which, when exported, will bring in 4½ doz. eggs, or 45 loaves weighing y lb., or 13 lb. of meats or 7½ lb. of butter, as apparently there has been an excess importation of the belting to the tune of £2,000,000.

Welcome to Witton. Published by the General Electric Company, Limited, Witton Works, Birmingham.

This 48-page booklet gives complete information to those joining the staff of this very large engineering concern at Witton. No point has been forgotten and even such matters as the finding of appropriate lodgings has been included. Employment to-day in industry is complicated for, in addition to earning one's living, one takes out insurances, joins clubs, saves up money for holidays, and, maybe, shoulders a scholastic continuation course.

A New Method of Cleaning Steel Castings

Mr. John A. Wettergreen, in a Paper entitled the "Electro-chemical Cleaning of a Large Steel Casting," given before the Philadelphia Congress of the American Foundrymen's Association, has described the cleaning of a large steel turbine shell by immersing portions of it in molten caustic soda. The portion chosen was the steam chest. It was dipped in the molten caustic for two periods of 2 hrs. and 2½ hrs. Subsequent washing took 6 hours. The cleaning was, however, very satisfactory.

THREE SCHOOL CHILDREN trespassing in the moulding shop of the Banff Foundry & Engineering Company, Limited, trampled over the rammed-up moulding boxes and quickly did over £12 damage assessed as the time necessary to make new moulds.

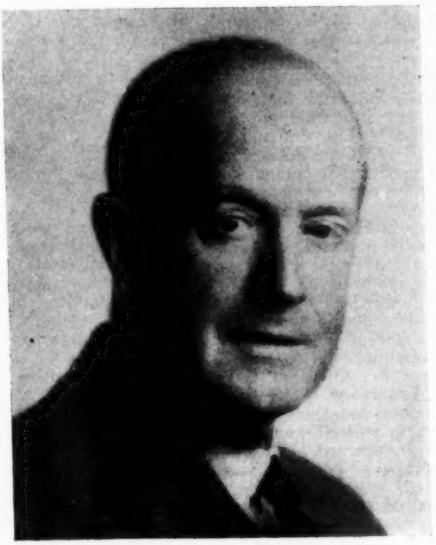
Presidential Address

Institute of British Foundrymen ★ *By* ★ **Annual Conference June, 1948**

R. B. Templeton, M.I.Mech.E.

I am very proud to stand here this morning after the ordeal I have just gone through in becoming President of the Institute of British Foundrymen. It is an ordeal, but not one which I would wish to avoid, indeed, it is an honour of which anyone can be very proud. I have read the addresses of many Past Presidents, and take comfort from the fact that they too seemed overawed, as indeed I am, at the greatness which had been thrust upon them. I hope the two Vice Presidents are listening to what I am saying, because as sure as day follows night, they in their turn will suffer and enjoy the same nervous and pleasant sensations which I am experiencing at this moment.

Two years ago I was elected your Junior Vice President, and ever since I have given much thought to what I should say to you to-day. I have wondered whether I should in this address deal with the ancient history of our industry, and talk of the Tubal Cain whom the Bible tells us was the first artificer in brass. Then I wondered if I should talk about the immediate present of which you all know far more than I do, and thirdly whether I should deal with the future, about which none of us knows very much, and about which all of us have grave misgivings to-day. In contemplating the future one must review the past, and Lord Byron somewhere has said, "There is no doubt that the best prophet of the future is the past."



MR. R. B. TEMPLETON.

I have been warned that in this address there is no room for levity, and you will agree that there is much to be serious about when one contemplates the industrial, economic, and financial situation as it seems to us to-day. Never before in the history of our country have the Government and people been faced with problems of such complexity and size as those which beset us to-day. We have seen this situation come about with its decline in effort and work, a rise in production costs, and a world-wide industrial expansion in foreign countries. The recent war has liquidated nearly all our overseas investments—a national nest egg created and built up by our 150 years' industrial progress—and has precipitated the present crisis.

Our thoughts are so obsessed with balance of payments, inflation, and currency upheavals, that we do not know where we are heading, but we do know the stark reality of our position. We have exhausted the American loan and are now expecting another subsidy to help us out and bring about the world recovery. I wonder sometimes if the Western European countries in their expectations of economic aid from the United States are not unlike the extravagant and prodigal son who says of his rich and indulgent father—"The old man will pay up." We all must know that the desired recovery will only come when the world can again exchange its products freely. Yet I take comfort in spite of it all, when I think that a hundred years ago William Pitt said, "There is nothing around us but ruin and despair," and Disraeli said "There was no hope in industry, commerce, or agriculture."

Although the war ended nearly three years ago, the state of emergency in industry has not yet passed. Over-all planning, which is a function of the Government, is still necessary if our raw materials and manpower are to be conserved and distributed with the best advantage to our national economy. We sincerely hope this state of affairs will soon end and that the fundamental laws of supply and demand will again satisfy our needs, but in grumbling and worrying over controls and restrictions, hideous as they may be, are we not showing a lack of initiative and enterprise, when we should be overcoming these obstacles?

During the war, the State was the buyer of our products, but to-day our old friend the real buyer

Presidential Address

is convalescent and I think the enforced rest has done him good, as he seems to have lost none of his native pre-war cunning. Our salesmen, too, will soon have to resume their real job of being "order seekers" instead of "order takers," and cease to be skilled apologists for overdue deliveries of castings.

Neither a nation, nor an industry, can stand still. It must either progress or decline, and the process of decline may be a long drawn-out one. A business may have had years of profitable trading in which it establishes reserves and goodwill followed by the bad years in which it incurs losses. It can, however, still function for a time by drawing on its goodwill and reserves, until one day it either pulls itself together, or it goes under. This may have happened to our particular industry; if so, I can say with certainty that we have pulled ourselves together.

Research

Some very important things have happened to our industry in the past 20 to 25 years, and foremost I place research, which I think can be likened to the intelligence branch of an army. It is the special dimension which enables it "to get there first with the most." In the past we have invested far too little capital in research compared with our international competitors. Maybe we have relied on our craftsmanship, and our ingenuity to keep us to the fore, and valuable as these assets are, they are not enough to keep us up-to-date in these days where new processes are springing up overnight. To-day more than ever in our industrial history, if our products are to be sold abroad they must be superior to, and cheaper than, similar articles that can be produced in the countries where we hope to sell. Are we not told almost daily in no uncertain terms that we must export or expire?

In this country we are at a fundamental disadvantage with other countries in that we depend on imported ores in almost all of our metallurgical industries. Great strides are now being made to utilise our lean iron ore deposits for the manufacture of basic iron, but raw materials, such as copper, lead, nickel, tin, zinc for the non-ferrous industries, as well as alloys for making special steels, are all imported. It does not take much imagination to see how vitally important research must be to-day.

We have the following bodies busily engaged on research, namely, British Iron and Steel Research Association, the British Cast Iron Research Association, the British Non-Ferrous Metals Research Association. We have the Department of Scientific and Industrial Research, the laboratories of universities, technical colleges, and those maintained by private firms. We have all the various technical committees which this Institute sponsors. These bodies are paying dividends and they are going to pay more handsome ones in the future. It has already been said that more could be done by a co-ordinated effort of all these research bodies. Many problems are common to all sections of the foundry industry, and some overriding direction could now be developed with advantage. The somewhat aloof atmosphere of fundamental and specific research could with advantage be tempered to the practical problems of the foundry floor and its production.

Our Institute co-operates in various ways with the British Cast Iron Research Association, and it may be that in the near future an arrangement with the Iron and Steel Board and the Department of Scientific and Industrial Research will be made by which all iron-foundries in the United Kingdom will contribute indirectly to the support of this Association and become entitled to its services. The record of the Association on a voluntary basis of membership has been, since its incorporation in 1921, one of unbroken progress.

Iron Castings

The advent and commercial production of the modern high-duty irons during the past 15 years has placed cast iron in the category of a reliable and consistent engineering material. Progress has been so rapid that it has left the engineer and designer years behind, in their full appreciation and application of this metallurgical advance. These high-duty irons have raised the whole plane of cast iron to standards far above those which it held a few years ago, and the British Cast Iron Research Association can be congratulated for having contributed to this in no small measure.

Steel Castings

On this section of our industry there is nothing outstanding to note, and development has been on the lines of planning to improve efficiency and towards specialisation. It is too soon to comment on the work now being carried out on oxygen enrichment of the Tropenas furnace. Steelfounders, in conjunction with the British Standards Institution, have considered many new specifications, including 1½ per cent. manganese castings, austenitic manganese-steel castings, and steel castings for high temperatures and pressure application. An interesting feature is the publication of a series of bulletins which set out for the benefit of the designer and user, an explanation of the properties of steel castings, and the relation of these properties to features of design.

Malleable Castings

This section has seen some development on the lines of using the gaseous treatment for the malleablising process. This is mainly for thin-walled castings of the pipe-fitting and conduit type. The new British Standards Specifications 309 and 310 (1947) have been published and the problem of "peeling," which has been a headache to the whiteheart trade for many years, was the subject of a symposium of Papers read before the Iron and Steel Institute early this year, in which several of our members took part, and the results are encouraging.

Light Alloys

Recent years have seen a notable increase in the use of light alloy castings for stressed components, particularly in aircraft construction and many assemblies formerly fabricated from wrought materials are now produced as light alloy castings. Famous wartime examples are the chill-cast beam, made in 10 per cent. magnesium-aluminium alloy, for the Lancaster bomber,

and the massive magnesium alloy casting for the undercarriage of the Halifax bomber. The production of these and other castings for vital structural components has demanded sound consistent foundry technique with controlled inspection in which radiographic examination of castings is indispensable.

Non-ferrous

High-tensile brass castings have been substituted for forgings with economies in cost, time and forging capacity. Typical examples are manganese-bronze gun-mountings and towing hooks for tanks. In the inspection of these castings use has been made of gamma radiography. The casting of tin bronzes has been the subject of an investigation of methods for the production of pressure-tight castings. Hydrogen, the liberation of which is recognised as a common cause of porosity, can be absorbed by the metal from the furnace atmosphere and unsoundness can be minimised by sweeping away this gas with carbon monoxide. A notable development of non-ferrous material is "Nimonic 80," a nickel-chromium-titanium alloy evolved for gas turbine and jet engines. It is interesting to note that the "lost wax" process is used in the production of turbine blades in this material.

Plant and Equipment

I must not omit a reference to what has been done by those specialists who supply our needs of foundry equipment and plant. At the beginning of the war our industry was mobilised and transformed. Insufficient capacity for the production of steel and light alloy castings was made good. New foundries were put into production in record time; vigour which characterised this effort was responsible for the production of war material at a time when it was vital to our survival.

Mechanisation of our foundries has proceeded fast during the past ten years and is playing a great part in increasing man-hour production, eliminating fatigue, and reducing costs. With increasing standardisation of our products, the tendency has been to extend the mechanisation of the repetition foundries, and so the skill and craft passes from the man to the machine. To-day we have ferrous and non-ferrous die-casting plants making millions of castings every year and one sometimes wonders where, and for how long, will this output be absorbed; but, remember, away back at the beginning of it all is the skilled moulder, whose craftmanship is vital and will be needed as long as engineering exists; and this craftsman still works on his knees in the sand in our foundries as did his ancestors years ago. I leave this thought with our mechanical experts: "Can anything more be done to ease his load, and increase *his* productivity?"

Much has been said and written on the matter of our foundry amenities and working conditions. The whole subject has been floodlit from end to end, so perhaps very soon that "old-world charm of atmosphere" which has persisted in many of our foundries will be swept away by the storm of opinion raised by the Garrett Report. The foundry equipment specialists are now vigorously tackling this matter of amenities and working conditions—and there is much to be done.

Trade Associations

It is only in very recent years that we have become conscious of the value of trade associations and alive to their importance. This Institute as a scientific and technical body is not primarily interested in the commercial and trade aspects of the industry. As individuals, however, we live very close to our industry and are vitally interested in our markets, our trading conditions and matters which deal with the manifold difficulties of our raw material supplies. Great work has been done for us in Government and other circles by our trade bodies, and one must never forget that these associations have been the means whereby we, as individuals, have become better known to each other, a factor which perhaps has had the greatest influence in our betterment, and the betterment of those whom we serve.

It is impossible for me to deal with all the things which have been done, the benefit of which will become increasingly evident as time goes on. One can refer to propaganda and publicity, the recruitment and education of our labour, but all this is set out admirably in the Bulletins which are issued. If I may mention one particular thing, I would refer to the Cost Ascertainment Booklet recently issued by the C.F.A. I think this work is outstanding, and I believe that when its principles have been adopted generally throughout our industry, it will do much to eliminate cut-throat competition, an evil which I feel is due to ignorance rather than malice. If we can do something to stop this unnecessary evil we shall have gone far towards smoothing out those recurring peaks of make-believe prosperity, and depths of real depression from which we have suffered in the past.

Many busy people in our industry give up much time to committees which are set up to investigate our many problems. One hears it sometimes said "there are far too many committees." This may be so, but the fact should never be lost sight of that it is due to the work put into these investigations, that we are beginning to appreciate our own economy.

General

I fear by mentioning the word "concentration" I am stepping in where angels fear to tread, but I do not mean the hurried and muddled form of concentration which was imposed on London foundries with such poor results at the beginning of the war. I think rather of a number of small units where a voluntary merger of their interests and outputs would strengthen them individually, and as a group. Take, for instance, five or six small localised jobbing foundries. They each cater for much the same type of casting and customer. They have similar equipment, plant and layouts. They compete for orders with each other, and the size of their individual business does not permit of the expense of a cost accounting system. I venture to say that in those five or six foundries, many castings are produced in one unit at prices which are uneconomic, but which in another unit of the group would be profitable. A cost accountant would quickly discover anomalies in individual costs and selling prices, and could deploy the group orders in a way which would show better production, greater efficiency and higher profits for each member of the group.

D

Presidential Address

About two months ago the impressive statue in bronze of President Roosevelt was unveiled in Grosvenor Square. The head, which was cast separately from the rest of the statue was made by the "lost wax" or *cire-perdue* process, and if you were able to examine it you would see perfectly reproduced and visible in the bronze casting—a finger print—which was made on the plaster model of the head by Sir William Reid Dick when he was preparing it for the foundry. The memorial with its plinth of Portland stone stands in the gardens flanked with plane trees and lawns and by a process of patination in which certain acids react chemically with the metal the statue has been coloured green to harmonise with its surroundings.

I ask those of you who have not seen it, to spare half an hour and do so because you will see there an imposing and beautiful example of a technique in founding which has come down the ages, through Benvenuto Cellini and other great artists of the renaissance period to a group of skilled craftsmen in a London foundry.

We hear nowadays a great deal about incentives, and such rewards are desirable as long as they reflect increased production. Words somehow to-day take on a new meaning, for instance the word "profit" is rarely linked with the word "loss," in fact in certain quarters it is associated instead with the word "profiteer." Business profits are the reward of the effort we put in and the risk we take all through our lives, and surely we are entitled to such rewards. It is by business profits that we all live and hope to better ourselves, and in them there is no likeness to, and there can be no comparison with, such a thing as the exploitation by a black market of a commodity which is in short supply.

This Institute has more than twenty committees sitting and working on various technical, executive, and other matters connected with its functions, and is producing something which is of immense value to all members who care to avail themselves of it. The number of people who comprise these committees is about 3 per cent. of the total membership of our Institute.

Our eleven Branches with their Sections, each with its President, Secretary, and Committees, continue to flourish. I pay the highest tribute to the work done by them, they are the life blood of our Institute. Look through the lists of those who give their time and effort to this work and you will find that year after year the same happy few, the same willing horses, do not spare themselves.

Gentlemen, when we join and become members of this Institute we undertake certain obligations and responsibilities to further the aims and objects and ideals for which it exists. Those obligations and responsibilities are not liquidated merely by paying our subscriptions regularly each year. We all can get, and do get, a great deal of value out of our Institute. Surely something must be put in by more of us.

I had rather a shock a week ago after I had completed this address, when I came across this pamphlet which was issued by your Council about three years ago. It is called "Notes for guidance of authors of Papers." On reading it I found this sentence—"Repetition of any material previously published in the Proceedings, is discouraged." I am sorry to say I cannot find an indication anywhere in the pamphlet that the remarks of your President are exempt from this warning.

I have not said anything new or outstanding to you this morning, and all the things I have said have been said before, much more ably; therefore I make no apology when I confess to you that if you had read all the addresses of Past Presidents as I have done, and studied all the works of reference, and received all the help which I have used, quite unashamedly, in compiling my remarks this morning, then rightly you could accuse me of having repeated my way, through a good deal of what has been said and written before, and I am going to end on the same note of plagiarism when I paraphrase something which was said in the United States of America, on an historic occasion, by a famous French Ambassador: "Remember this and be persuaded also of its truth." The future and the prosperity of our Institute lies, not in "the Hands of Fate"—but in ours.

Book Review

A Pocket-Book for Mechanical Engineers, by David Allan Low. Edited by B. B. Low, and published by Longmans, Green & Company, 6 and 7, Clifford Street, London, W.1. Price 15s. net.

The reviewer seems to remember the time when this pocket-book really was a pocket-book. Now that it runs to about 800 pages, it would play havoc with the average austerity suit. It is hard luck that, so far as cast iron is concerned, the publication date was just a little too early to include the new British Standards Institution specification, so the 1938 (B.S.S. 786) is quoted as representing the progress made since the 5 ton per sq. in. was deemed to be figure for "poor": 8 to 11 "average" and 14 to 16 "very good." To-day, it would be very difficult to make a 5 ton per sq. in. tensile cast iron, and few concerns would know how to do it! Still, the part dealing with cast iron is a very good section. It is 50 years ago since this book was first published, and its reputation for accuracy has been such that it has long been recognised as a standard work of reference, even though it be no longer in a pocket-book in the true sense of the word.

V. C. F.

MR. W. J. TRELOAR, of Oliver Manufacturing Company, Proprietary, Limited, Sydney, non-ferrous founder, is expected in London in June. He is interested in meeting executives with the idea of manufacturing in Australia a utility proprietary line, non-ferrous, if possible. London address: c/o Australia House, Strand, London, W.C.2.

The Institute of British Foundrymen

ANNUAL REPORT

May 1, 1947 ——— *April* 30, 1948

This Report covers the period May 1, 1947, to April 30. 1948, the statement of accounts for the year ended December 31, 1947, and the balance sheet at that date, are included.

Finance

The increase of subscriptions from £7,393 in 1946 to £8,532, is due mainly to the increase of membership. The increase of expenditure is due principally to the following three factors:—(1) Expenditure resulting from the increased membership, *i.e.*, additional printing, administration expenses, etc.; (2) increased activities and services to members, and (3) increased cost of materials and services.

Membership

The membership on April 30 was 4,117, compared with 3,902 on April 30, 1947. An analysis of the membership and of the changes which have taken place in the year is shown in Tables I and II.

The Council regrets to announce that the deaths of the following twenty-three members have been notified during the year:—Mr. I. H. Baker, member, Birmingham branch, elected 1931; Mr. L. Bernstein, member, South African branch, director of the City Engineering Works, Pretoria, elected 1937; Mr. G. C. Castle, member, Birmingham branch, past-president of the Sheffield branch, elected 1921; Mr. T. Coates, Associate member, South African branch, elected 1937; Mr.. F. J. Cook, honorary life member—was a founder member of the Institute, was President in 1908, and again in 1909; for many years he was a trustee and was elected honorary life member in 1932; was one of the Institute's most active workers and contributed Papers on a variety of subjects; he was virtually "Father" of the Institute; Mr. A. H. Cook, Associate member, Sheffield branch, elected 1907; Mr. T. H. Dick, member, Sheffield branch, elected 1936; Mr. S. Evans, member, London branch, elected 1937—was previously connected with the Birmingham branch—Mr. W. E. Holmes, member, London branch, elected 1928; Mr. J. A. Horne, Associate member, Sheffield branch—he was elected in April, 1947, and died in August of the same year—Mr. T. Hunt, Associate member, East Midlands branch, elected 1941; Mr. W. Jacques, Associate member, Birmingham branch, elected 1931—Mr. Jacques was associated for many years with Mr. Andrew Harley, past-President—Mr. G. W. Kirk, member, West Riding of Yorkshire branch, elected 1932; Mr. G. Mackay, Associate member, Scottish branch, elected 1910; Mr. D. J. Menzies, Associate member, unattached member—he was with the Anglo-Iranian Oil Company, Limited, Abadan; he died suddenly in Abadan in August last—Mr. J. S. Glen Primrose, member, Birmingham branch—Mr. Primrose had been associated with the Scottish, London, Lancashire, and

TABLE I.—*Changes in Membership*, 1947-48.

	Subscribing firms.	Members.	Associate members.	Associates.	Totals.
At April 30, 1947	185	1,517	1,936	264	3,902
Additions and transfers from other grades	22	160	277	96	555
	207	1,677	2,213	360	4,457
Losses and transfers to other grades	9	73	218	40	340
At April 30, 1948	198	1,604	1,995	320	4,117

TABLE II.—*Analysis of Membership at April* 30, 1948.

Branch.	Subscribing firms.	Members.	Associate members.	Associates.	Totals.
Birmingham	19 (16)	237 (225)	258 (236)	35 (28)	549 (505)
Bristol	6 (5)	69 (70)	74 (74)	2 (1)	151 (150)
East Midlands	10 (9)	110 (99)	237 (215)	25 (25)	382 (348)
Lancashire	22 (22)	186 (175)	266 (274)	30 (16)	504 (487)
London	27 (25)	330 (305)	275 (259)	24 (19)	656 (608)
Middlesbrough	1 (1)	41 (45)	66 (74)	29 (32)	137 (152)
Newcastle	17 (13)	40 (38)	70 (57)	51 (49)	178 (157)
Scottish	18 (17)	147 (138)	267 (277)	41 (34)	473 (466)
Sheffield	7 (7)	112 (112)	103 (105)	8 (—)	230 (224)
Wales and Monmouth	7 (5)	65 (66)	60 (74)	29 (29)	161 (174)
W.R. of Yorks.	11 (11)	95 (89)	166 (143)	17 (17)	289 (260)
South African	48 (49)	115 (108)	115 (112)	25 (12)	303 (281)
General	5 (5)	57 (47)	38 (36)	4 (2)	104 (90)
Totals	198 (185)	1,604 (1,517)	1,995 (1,936)	320 (264)	4,117 (3,902)

Figures in brackets are totals at April 30, 1947.

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Birmingham branches; he was past-President of the Lancashire branch and had been most active on the Institute's Technical Committee for some years; he had presented many Papers to various branches of the Institute; elected 1910—Mr. E. A. Roper, member, West Riding of Yorkshire branch, elected 1928; Mr. Matthew Russell, Associate member, Scottish branch—some years ago Mr. Russell was a winner of the John Surtees Prize; elected 1928—Mr. H. Simpson, Associate member, Birmingham branch, elected 1914; Mr. T. Tyrie, member, past-President of the Scottish branch—Mr. Tyrie was in charge of the Scottish laboratories of the British Cast Iron Research Association, and was a foundry technician of much promise; his death at a comparatively early age is a great loss to the Institute, and to the industry generally; elected 1927—Mr. F. Visick, member, Bristol and West of England branch—resided in Truro, Cornwall; elected 1935—Mr. William Walker, Bonnybridge, Associate member, Scottish branch, elected 1920; Mr. Gwilym Williams, member, Birmingham branch, elected 1934.

Honours Conferred upon Members

Congratulations are tendered to the following members who have been honoured during the past year:—Sir Andrew McCance (member) has been nominated for the office of President of the Iron and Steel Institute for the year 1948-49 and is to receive the honorary degree of LL.D., of Glasgow University, on June 23, 1948; Sir William J. Larke, K.B.E., D.Sc. (hon. life member), was awarded the Bessemer Gold Medal of the Iron and Steel Institute for 1947, in recognition of his eminent services in the development of research organisations in the iron and steel industry; Mr. H. Morrogh (Associate member) was awarded the Andrew Carnegie Gold Medal of the Iron and Steel Institute for his memoir "The Neutralisation of Sulphur in Cast Iron by Various Alloying Elements"; Mr. P. H. Wilson, O.B.E., President, has been elected vice-chairman of the Board of Governors of the National Foundry College; Mr. F. A. Martin (member) has been elected chairman of the British Steel Founders' Association; Mr. F. W. Rowe, B.Sc. (member) has been elected vice-chairman of the British Steel Founders' Association; Mr. W. G. Thornton, past-President of the West Riding of Yorkshire branch, has been re-elected President of the Bradford and District Association of Engineering and Allied Employers; Mr. H. Forrest, past-President of the West Riding of Yorkshire branch, has been elected Junior Vice-President of the Bradford and District Association of Engineering and Allied Employers; Mr. T. H. Summerson (member) has been elected a member of the Grand Council of the Federation of British Industries and has also been elected chairman of the Tees-side Chamber of Commerce; Mr. I. Jenkins and Dr. Brynmor Jones (members) have been awarded a joint Williams Prize of the Iron and Steel Institute for their Paper, "The New Annealing Plant for Steel Strip in Coils at the Whitehead Iron & Steel Company, Limited"; Mr. A. P. Jesshope (member) has been elected an honorary life member of the Stoke-on-Trent Association of Engineers; Mr. A. S. Worcester, past-President of the West Riding of Yorkshire branch, was presented with a silver salver to mark his retirement from the office of President of the West Riding Ironfounders' Association; Mr. D. Howard Wood (past-President) was the Institute's official delegate at the Centenary Celebrations of the Institution of Mechanical Engineers.

Awards

The following awards were presented at the Annual General Meeting held in Nottingham in June, 1947:—

Oliver Stubbs Medal.—The 1947 award of the Oliver Stubbs Medal was made to Dr. A. B. Everest, B.Sc., F.I.M., in recognition of the services which he has rendered to the Institute through his long membership of the Council, the Technical Council and other committees, and as the author of numerous Papers.

E. J. Fox Medal.—The E. J. Fox Medal for the year 1947 was awarded to Mr. T. Makemson, in recognition of his outstanding services to the foundry industry as secretary of the Institute for twenty-one years and of his outstanding work during the period 1940-46 as Joint Director and later Director of Iron Castings in the Iron and Steel Control of the Ministry of Supply.

The British Foundry Medal.—The British Foundry Medal for the year 1947 was awarded to Mr. Basil Gray for his Paper on "The Production of 'Grand Slam' Bomb Castings."

Meritorious Services Medal.—The 1947 award of the Meritorious Services Medal was made to Mr. John Bolton in recognition of the services which he had rendered to the Institute during Mr. Makemson's wartime absence with the Ministry of Supply.

Diplomas.—The following members were awarded diplomas for Papers given before the branches named: Mr. H. Taft (Middlesbrough branch), Mr. H. G. Hall (Birmingham branch), and Mr. D. H. Young (Scottish branch).

Edward Williams Lecture

The Edward Williams Lecture was delivered at the Conference in Nottingham, in 1947, by Sir Edward Appleton, K.C.B., M.A., D.Sc., F.R.S., Secretary of the Department of Scientific and Industrial Research. The subject of the Lecture was "New Metals for Old." The Council congratulates Sir Edward Appleton upon the award to him of the Nobel Prize which was announced recently. The 1948 Edward Williams Lecture will be delivered at the Conference in London, on June 9, by Dr. H. Schwartz, of Cleveland, U.S.A., on the subject of "Some Solved and Unsolved Problems in the Metallurgy of Blackheart Malleable."

Branch Activities

In spite of the increased amount of work of a national character upon which the Institute is engaged, the fundamental basis of the Institute's constitution is the branch. There are eleven branches in this country, together with five sections of branches; additionally, there is a very flourishing branch in South Africa which meets in Johannesburg, and an equally flourishing section of the South African branch which meets in Cape Town.

The thanks of the Institute are due and are hereby recorded to the very large number of members and friends of the Institute whose work and interest has enabled the branches to complete a most encouraging and useful session. Included amongst those to whom thanks are tendered are the branch officers, branch councils, authors of Papers, and firms who have permitted visits.

F. J. Cook Award

It will be remembered that Mr. D. H. Wood instituted the F. J. Cook Award Competition and donated the sum of £150 in prizes. Mr. Wood has since increased this amount by a further ten guineas to provide a special prize for an overseas entry. The awards were announced prior to the Annual Conference in Nottingham in 1947, and the presentations were made at that Conference. The winning entries are as follow:—First prize of £75 to Mr. H. Berry, Brighouse, Yorks; prizes of £25 each to Mr. J. R. Horton, Newark, Notts; Mr. J. Hird, Birmingham, and Mr. James Timbrell, Leeds; special prize of ten guineas to Mr. W. A. McLaren, Cape Town.

The four winning entries have since been published as a booklet under the title of "The Improvement of Foundry Working Conditions," which is available to members of the Institute at the reduced price of 2s. 6d. The thanks of the Institute are tendered to Mr. Wood for instituting this competition and for his generosity in providing the prizes.

Publications

Publications during the year ended April 30, 1948, are:—(1) "The Improvement of Foundry Working Conditions," to which reference has been made; (2) "Proceedings" for the year 1945-46; (3) "Journal" of the Institute, which has been published at two-monthly intervals, and (4) preprints of eleven Papers given at the Annual Conference in Nottingham. The delay in the delivery of certain binding materials was responsible for the issue of the "Proceedings" at a later date than was anticipated and the same cause is delaying the publication of the 1946-47 issue, which is otherwise ready. It is hoped that this volume will be published within the next few weeks. Most of the Institute's other publications have been published at the scheduled dates in spite of considerable difficulties.

Education

The three Regional Committees on Foundry Recruitment and the Training of Apprentices to which reference was made in the last Annual Report, have progressed considerably during the year and have collaborated with the Committee on Recruitment, Training and Propaganda of the Council of Ironfoundry Associations which has issued a comprehensive report. This report includes a long-term scheme of workshop training involving the provision of regional training workshops. The Education Committee of the Institute has agreed to collaborate actively in the establishment of this scheme.

Members of this Institute are particularly interested in the examinations conducted by the City and Guilds of London Institute in Foundry Practice and in Patternmaking, as this Institute was responsible for the establishment of these examinations and has taken an active part in their conduct ever since. The results of the 1947 examinations are given below:—

Patternmaking—Intermediate.

Number of candidates.	Pass 1st class	Pass 2nd class.
94	73	7

Patternmaking—Final.

28	5	12

Foundry Practice—Intermediate.

114	41	32

Foundry Practice—Final.

28	1	6

Buchanan Book Prizes in respect of the Patternmaking (Final) Examinations were awarded to Mr. Harry Davies, Wednesbury, and Mr. Louis Eric Betteridge, Smethwick. One of the problems which has faced the Institute and various educational authorities is the provision of suitable teachers. Several members of the Institute have responded to an invitation given in the "Journal" and intimated that, in the event of vacancies occurring in their immediate neighbourhoods, they are prepared to offer their services.

International Contacts

The International Committee of Foundry Technical Associations held a meeting at Liège in September under the presidency of Mr. J. Lobstein, of Paris. At this meeting Mr. V. C. Faulkner was elected President for 1948. The International Committee on Testing Cast Iron held its first post-war meeting at Liège at the same time under the presidency of Dr. J. E. Hurst.

In the early summer of 1947, members of the London branch of the Institute paid a visit to Belgium and inspected a number of foundries in Brussels and Liège under the guidance of the Association Technique de Fonderie de Belgique. Members of the Association are hoping to pay a reciprocal visit to this country at the end of May.

A number of members of the Institute will visit the Convention of the American Foundrymen's Association to be held at Philadelphia early in May.

Relations with Other Organisations

The Institute is represented on a very large number of bodies of interest to the foundry industry. These organisations include Research Associations, various committees of the British Standards Institution and educational bodies. Close relations are also maintained with other technical organisations similar to this Institute and with foundry technical associations in other countries.

Annual Report of the Institute

Supplementary Charter and New Bye-laws

At the Annual General Meeting held in Nottingham in June last, unanimous approval was given to the revision of the proposed new bye-laws subject to the approval of the Privy Council and for a revised application to the Privy Council for a Supplementary Charter. Since that date formal application has been made and considerable negotiations have taken place between the Institute and the Privy Council, whose decision has not yet been given.

Special Meeting

On January 16, 1948, a special meeting of the Institute was held in London to commemorate the completion of twenty-one years' service of Mr. T. Makemson as secretary. The meeting, which was presided over by Mr. P. H. Wilson, President, was preceded by a complimentary luncheon. On behalf of the members, Mr. Wilson presented a silver tea service and a cheque to Mr. Makemson. The President's remarks with regard to Mr. Makemson's work were endorsed by Mr. D. H. Wood, ex-President, and by Sir John Duncanson, wartime Controller of Iron and Steel. An album of congratulatory telegrams from each of the Foundry Associations represented on the International Committee, was presented by Mr. V. C. Faulkner, President of that Committee, and Mr. V. Delport made a presentation of a wallet on behalf of the Association Technique de Fonderie de France and of the Syndicat Général des Fondeurs de France.

A lecture on the subject of "The Inter-Relation of the Engineering and Metallurgical Industries" was delivered by Sir Arthur Fleming, C.B.E., D.Eng. Since the date of the meeting, Mr. Makemson has been elected honorary member of l'Association Technique de Fonderie de France.

Council and Committees

During the year there have been four meetings of the Council, four meetings of the Technical Council, numerous meetings of the Executive Committee and of other Standing Committees of the Council, and about 35 meetings of Sub-Committees of the Technical Council. Of the ten members elected by ballot for a period of two years, five retire each year. Those who so retire at the Annual General Meeting in 1948 are:—Mr. H. Bunting, Dr. A. B. Everest, Mr. C. Gresty, Mr. A. Phillips, and Mr. J. J. Sheehan. All these gentlemen are eligible for re-election, but only Dr. Everest and Messrs. Gresty and Sheehan offer themselves for re-election. The election of Mr. Sheehan as Junior Vice-President will automatically give him a seat on the Council. The Institute's hearty and sincere thanks are tendered to those members who have been active in the work of the Technical Council, its Sub-Committees and of the various Standing Committees of the Coucil. The Institute is particularly indebted to Mr. A. E. Peace and Mr. L. W. Bolton, respectively chairman and deputy chairman of the Technical Council, and to Mr. C. W. Bigg, honorary treasurer.

At the Annual General Meeting to be held at the Café Royal, London, on June 9, the Council will nominate the following as officers for the year 1948-49:—As President, Mr. R. B. Templeton, M.I.Mech.E.; as Senior Vice-President, Mr. N. P. Newman, J.P., and as Junior Vice-President, Mr. J. J. Sheehan, B.Sc. The East Midlands branch is to be congratulated upon the success of the Conference held in Nottingham in 1947, and thanks are expressed to them, to the Conference secretaries, and all who were responsible for the arrangements.

Staff

Mr. J. Bolton, who had been assistant secretary since February, 1938, and was acting secretary during the war period, relinquished his post on September 30, 1947, in order to take up another appointment. It was with very great regret that the Council received Mr. Bolton's resignation and their appreciation of his services was put on record by the following resolution, which was passed unanimously on October 18, 1947:—"That this Council thanks Mr. John Bolton for his services as assistant secretary and acting secretary of the Institute from March, 1938, to September, 1947, and hereby places on record its appreciation of his initiative and enterprise and of the able and devoted manner in which he carried out his duties. The Council extends to him very good wishes for his future career and happiness."

Mr. G. Lambert, who was chief assistant to the Secretary of the Institute of Marine Engineers, was appointed to succeed Mr. Bolton and took up his duties in October last.

(Signed)
P. H. WILSON, President.
T. MAKEMSON, Secretary.

Book Review

Electric-Motor Control Gear, by J. L. Watts. Published by the Electrical Review, Limited, Dorset House, Stamford Street, London, S.E.1. Price 5s. net.

More breakdowns occur in control gear than in the actual motors themselves, and the object of this book is to reduce these by giving fundamental data covering operational matters. This has been compressed into 84 pages carrying no fewer than 82 diagrams. The author has rightly attached considerable importance to the latter, and their clarity is commendable. The reviewer knows sufficient of electrical plant to leave its maintenance to electricians. He well remembers that whilst telephoning for one of this fraternity to hurry along to "see to" a voltage selector gear, his foreman put in the main switch and burnt-out the windings of a large transformer. Moreover, this is not an isolated case. Thus respecting the old adage about "shoemakers" and "lasts," the reviewer strongly commends the study of this book to those using motor control gear. The choice is wide, as equipments are not standardised. Their applications are diverse, yet for all applications they must have the attributes of being robust and foolproof.

Institute of British Foundrymen

Technical Council

Sixteenth Annual Report

Indicative of the marked expansion which has taken place in the work of the Technical Council, six new Sub-Committees (T.S. 22 to T.S. 27) have been formed during the period under review—May 1, 1947, to April 30, 1948. Details of the problems which these new Sub-Committees are called upon to investigate will be found in the summaries of the year's work which are recorded later in this report. As might be expected, in addition to the quarterly meetings of the Technical Council, an exceptionally large number of Sub-Committee meetings have been held.

Chairman's Advisory Panel

During the year a permanent Chairman's Advisory Panel was set up to consider all suggestions for future work before submission to the Technical Council. This innovation has proved successful and has ensured a more thorough and detailed study of new projects and greatly facilitated the deliberations of the Technical Council. The present members of the Panel are the Chairman, Mr. L. W. Bolton, Dr. A. B. Everest, and Mr. A. Tipper.

A very gratifying result of the work of T.S.16, which has now been dissolved, is the embodiment of the Sub-Committee's recommendations almost in their entirety in the new British Standard for Grey Iron Castings. Sub-Committee T.S.17 has also been dissolved, the Committee's report on Stress Relief having been presented at meetings of the Institute, and at the Institute of Metals Symposium on Internal Stresses in Metals and Alloys, in October, 1947.

In addition to the work of the Sub-Committees, representation has been fully maintained on external technical Committees, notably the joint I.B.F./B.C.I.R.A. Committee on Gases in Cast Iron, the Joint Sands Committee, and numerous committees of the British Standards Institution having reference to the foundry industry. The Technical Council records its thanks to the many members who represent the Institute on external committees, and who devote so much time to these important activities.

Liaison with B.S.F.A.

A particularly pleasing development is an agreement for co-operation on an *ad hoc* basis in matters of mutual interest between the Technical Council of the Institute and its Sub-Committees on the one hand and on the other the Technical and Research Organisation of the British Steel Founders' Association and its Technical Committees. The usefulness of such co-operation is evidenced in a valuable and authoritative contribution which the Association is making to the steel castings division of the further section of the Atlas of Defects in Castings, which Sub-Committee T.S.9, under the chairmanship of Mr. F. Hudson, is at present preparing.

"The J. W. Gardom Students' Fund" scheme continued to fulfil its valuable function throughout the year, and is greatly appreciated by the students who have been the fortunate beneficiaries. It is anticipated that in addition students will be allocated to the newly-formed Sub-Committees.

The question of amending the draft Statutory Rules & Orders relating to parting powders and sands, to which reference has been made in the Annual Reports of the past two years, is still receiving the consideration of the Factory Department of the Ministry of Labour and National Service. It is hoped that an official announcement will be made on this matter at an early date.

Appreciation has again been expressed to the many firms who have encouraged the activities of the Technical Council, not only by granting facilities to members of their staffs to attend the Council and Sub-Committee meetings, but by permitting experimental work to be carried out in their laboratories or foundries.

Summaries

Summaries of the work during the year of active Sub-Committees other than T.S.16 and T.S.17, to which reference has already been made, are given below:—

T.S.9.—Atlas of Defects in Castings (Chairman Mr. F. Hudson, F.I.M.): Stocks of the first issue of the "Atlas of Defects in Castings" are exhausted. The Atlas has now been slightly revised by the Sub-Committee and is being reprinted. A new section of the Atlas is in course of being assembled, and it is hoped that publication will take place towards the end of the present year. Attention is called to the appeal in the January issue of the *Journal* for photographs of defects suitable for inclusion in the Atlas. The Sub-Committee would greatly appreciate the co-operation of members who are in a position to assist in this respect.

T.S.12.—Dimensional Tolerances for Castings (Chairman, Mr. C. H. Kain, A.M.I.Mech.E., F.I.M.): Formed for the purpose of collecting data on which to base a statement for the guidance of both founders and users of castings as to the tolerances which may be regarded as reasonable in various types of castings, the Sub-Committee have now completed their final report for submission to the Technical Council.

T.S.14.—Light Alloy Test Bars (Chairman, Mr. A. Phillips): The Sub-Committee's investigation of certain Government proposals for the modification of light alloy test bars procedure has been completed. A greatly regretted illness of the Chairman, however, has delayed the preparation of a final statement and the dissolution of the Committee.

T.S.18.—Stripping Temperature (Chairman, Mr. A. E. McRae Smith, M.A.): The Sub-Committee was formed in September, 1946, and held several meetings during the past year. Experiments have indicated that decrease in temperature can be correlated with time, and work is now proceeding to determine the influence of stripping temperature on mechanical properties. Tests are also being carried out with the object of measuring dis-

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tortion. In view of the lengthy investigations which are being undertaken, an early conclusion of the Committee's work is not anticipated.

*T.S.*19.—*Inspection of Ferrous Castings* (Chairman, Mr. A. E. Peace); No comment has been received from the Ministry of Supply Directorate of Fighting Vehicles on the report which the Sub-Committee was appointed to prepare on the draft Inspection Instructions for Ferrous Castings. While the Committee has therefore remained in being, it has not met during the period under review.

*T.S.*20.—*Soundness of Iron Castings* (Chairman, Mr. A. Tipper, M.Sc., F.I.M.): Appointed in March, 1947, to examine and recommend methods of evaluating unsoundness in cast iron with a view to the use of such methods in subsequent investigations into the effect of mould materials on grey and malleable iron castings, the Sub-Committee has met on a number of occasions since the last report. Radiographic, supersonic, density, magnetic pressure, and other tests have been investigated. Experiments and investigations continue, but present indications are that radiographic examination is the most satisfactory method of assessing the soundness of iron castings.

*T.S.*21.—*Solidification Rate of Cast Iron* (Chairman, Mr. L. W. Bolton, A.M.I.Mech.E., F.I.M.): Formed in March, 1947, this Sub-Committee has been investigating the influence of mould materials on the rate of solidification of cast iron, and has had the assistance of the Department of Metallurgy, University of Birmingham, in carrying out various experiments. A suitable apparatus has now been devised to measure the rate of solidification, and initial tests have now been carried out on the effect of pouring temperature. Further tests are now being carried out with sands of four grain sizes in the dry and green condition and with an 8 per cent. coal-dust addition.

*T.S.*22.—*Raw Materials Substitution* (Chairman, Mr. L. W. Bolton, A.M.I.Mech.E., F.I.M.): Appointed to determine whether useful work could be done upon substitution for conventional raw materials in the foundry industry, with special reference to pig iron and cupola coke, this Sub-Committee presented its report at a meeting of the Technical Council in March. The Sub-Committee affirmed that useful work could be carried out on this subject, and recommended the appointment of a new Sub-Committee to conduct an inquiry and prepare a report. The Sub-Committee's report and recommendations were approved and accepted, and a new Sub-Committee (T.S.27) was appointed with terms of reference which are detailed later in this report. Sub-Committee T.S.22 was accordingly dissolved.

*T.S.*23.—*Reclamation of Iron Castings* (Chairman, Dr. A. B. Everest); This Sub-Committee was appointed in 1947 to consider the reclamation of grey iron castings by burning-on and welding. The Sub-Committee is approaching the question of the reclamation of castings with a view to preparing a code of practice and inspection (*a*) for the repair of castings in the foundry, and (*b*) for the repair of castings in service, the ultimate aim being the publication of a British Standard. Already the Sub-Committee has had three meetings, and some progress has been made with the preparation of the code of practice.

*T.S.*24.—*Ingates* (Chairman, Mr. W. Barnes): At the December meeting of the Technical Council, Sub-Committee T.S.24 was formed to study the influence of the shape and size of ingate and runner system on the condition of flow of metal into a mould. The Sub-Committee has held one meeting, and members are now carrying out tests on the ratios of downsprues, runner bars and total ingate area.

*T.S.*25.—*Melting of Cast Iron* (Chairman, Dr. Brynmor Jones): The Sub-Committee was appointed in December, 1947, to examine the literature and summarise the present state of knowledge on (i) the effect of various melting furnaces upon the properties of cast iron; (ii) the influence of slag composition on the properties of cupola melted grey cast iron; and (iii) the influence of pouring temperature on the properties of grey and white cast iron.

A survey has been made of the work involved, from which it appears that members' facilities are inadequate to deal with the subject in the manner at present visualised. It has therefore been decided to suspend activities for the time being.

*T.S.*26.—*Salvaging of Non-Ferrous Castings* (Chairman, Mr. G. Elston): Also formed in December, 1947, Sub-Committee T.S.26 is called upon to investigate methods of salvaging non-ferrous castings. The Sub-Committee has already met, and as an initial step attempt is being made to correlate experience of salvaging by burning-on, welding by arc or gas, brazing and soldering, annealing, impregnation, plating and metal spraying, and caulking and other mechanical methods, as applied to various non-ferrous materials.

*T.S.*27.—*Cupola Raw Materials* (Chairman, Mr. W. W. Braidwood): Arising from the report and recommendations of T.S.22, already mentioned, Sub-Committee T.S.27 was appointed at the March meeting of the Technical Council to prepare a report and recommendations on the use of available materials in cupola charges. This Sub-Committee has yet to meet at the time of this report.

A. E. PEACE,
Chairman, Technical Council.

House Organ

The S. & W. Magazine for June. Published by Smith & Wellstood, Limited, Bonnybridge, Scotland.

This issue tells something of the origin of the trade mark Trico—The Rustless Iron Company, Limited, Keighley. It is the present-day operation of the Bower Barff process—a method of making cast iron rust-proof by treating it at red heat with steam, so as to give a stable oxide coating. The industrial note in this isue covers the work of the Lumsden grinder.

R. E. Barker & Company, Limited, of Knottingley, and Oakley Brothers, Limited, of Cradley Heath, have been elected members of the British Cast Iron Research Association.

Osborn Apprentice Scheme

Inauguration Ceremony, June 7, 1948

As the Osborn Organisation, that is, Samuel Osborn & Company, Limited, and its subsidiaries, approaches its one hundredth anniversary, the board and officials are more than ever concerned to assure for the future that skill and knowledge in craftsmen and supervisors, which alone can carry the company through a second century. The comprehensive scheme of training conforms to their tradition of education for those entering the various departments of the company, which was first inaugurated by Sir Samuel Osborn at the end of the first world war, when a "continuation school" was part of the Osborn organisation, this in itself carrying on the tradition established by the founder, whose first school was started in 1871.

In the intervening years every encouragement has been given to the younger employees to attend the excellent evening classes of the Local Authority and the Sheffield University; schemes for payment of fees and awards for merit have always been provided by the Company. Specialised training is also necessary to equip young people for the tasks ahead in these difficult post-war years. An Advisory Training Committee was set up by the Board of Directors, with two Directors and five senior executives to form the Committee.

The Advisory Training Committee formulated an enlightened scheme and recommended the setting up of Works Committees consisting of the works manager, foremen and shop stewards at each of the works of the Company, which plan and carry out the actual training in close co-operation with the training officer. The full time Training Officer co-ordinates the training and looks after the progress of the boys in all stages of the Apprenticeship Scheme. Our representative had the privilege of hearing the students being addressed by the training officer, and was agreeably impressed with the obvious respect in which he was held. No matter how excellent any scheme may be on paper, success depends upon the instructor. The industry may be overloaded with organisations, yet it is felt that nothing but good could come from informal meetings of those charged with the training of foundry lads. Whilst booklets may do much good in attracting boys, it is reasonable to expect that the best recruiting officers will be the enthusiastic and satisfied boys.

Steel Foundry Processes

The shops of the Osborn concern are excellently adapted for teaching purposes, as many diverse processes are carried out. Steel is prepared by the electric arc, the electric induction and the Tropenas process, the last being the subject of intense experiment. The steel made by the baby Bessemer is so hot that after being made in one shop and transferred through the yard to a second, it can be, and is, used for casting 140 moulds from a two-ton bottom-pouring ladle. This beats the writer's personal record by 20 moulds, but at Osborn's, once the ladle is in a fixed position the moulds, carried on a length of roller conveyor, are pushed beneath the ladle nozzle. This does save much manœuvring by the crane. The core-sand handling, core making, mould and core drying stoves, heat treatment plant and laboratories are modern, whilst plans are afoot to improve the sand handling, and to strengthen the mechanical moulding plant. Other schemes include the provision of up-to-date washing facilities for the personnel.

The full period of training has been divided into three stages as follows:—

(1) *Initiation*

During this period a boy is given an opportunity of becoming accustomed to factory conditions and can look around to find a trade in which he feels he will succeed. His duties during this period enable him to move about the works, and he also attends day continuation school, works lectures and visits. Both the Company and the boy have an opportunity of judging his future during this period.

(2) *Probation*

The entrant having successfully completed stage (1) is interviewed privately by the Training Officer and decides the trade to which he wishes to be apprenticed. He is given an opportunity of being introduced to this trade, and during this period can decide if his first thoughts were right or whether he would like to change the trade he has entered. It is interesting to note that over 40 per cent. decide to become foundrymen.

(3) *Full Apprenticeship*

Upon entering this final stage the entrant has decided finally upon the trade he wishes to follow, whether in the Steelworks, the Foundry, the Engineering or the Commercial side of the Company's activities. He signs his agreement and his training begins in real earnest.

At the age of 21 those who have successfully completed their apprenticeship are given a certificate which will be endorsed by the appropriate Union and will be the hall-mark of a good craftsman. The scheme makes provision for those of outstanding merit to have further training to fit them for the higher posts in the Company and in Industry.

It must be mentioned that the Ministry of Labour, local education authority and the trade unions were consulted upon the details of the scheme and fully approved of the Committee's final draft.

Recruiting Position

The scheme is proving a success and the entrants are keen and of a good type. The scheme has been tested in that it has been in operation for twelve months, but due to various reasons it has not been possible to hold the official inauguration ceremony earlier. At present there are 10 boys in the initiation period 25 in the probation period and 36 full Apprentices. Although these numbers fall short of the Company's full requirements, the results achieved so far are very encouraging. There is ample evidence of a keen interest in the work; a sense of discipline and a desire to improve their knowledge is shown by the boys.

The Lord Mayor of Sheffield, Alderman W. E. Yorke, and the Master Cutler, Mr. Edward Senior, honoured the Company by officially inaugurating the scheme, and presented badges and certificates to 71 boys already entered in the scheme and training to become "Osborn Craftsmen."

More Progress in Foundry Amenities

New Centre at Brightside Foundry

The Master Cutler, Mr. E. W. Senior, speaking at a luncheon given by the Brightside Foundry & Engineering Company at the Grand Hotel, Sheffield, on May 27, said that the women of Britain will shortly demand that their menfolk leave home clean and return home clean. Mr. Ambrose Firth, who presided, described the efforts being made by his company to attain this desirable factor. The Brightside concern was a large, old established foundry, but it also had a heating and ventilating engineering business. Thus, as the foundry industry by and large needed better housekeeping methods, his firm had decided to try it out on the dog! So now foundries wishing to put their house in order could visit them and see the results achieved. The new washing and changing facilities were housed in a specially adapted centre and they had been well received, but "some of the older men had not perhaps taken like ducks to water." The percentage using the baths was higher than the figure regarded as average throughout the industry.

The guests included local manufacturers, architects, consultants, and trade union officials, and after luncheon inspected both the Newhall and Brightside Works. At the former they showed much interest in the new welfare centre, designed and installed by the Heating and Air Treatment Division of the company, which considerably improved conditions for the foundry workers.

Lockers and Showers

The centre provides locker accommodation (Fig. 1) and washing and bathing facilities (Fig. 2) for employees. Each man is provided with two lockers, one to accommodate his clean clothes and another his working clothes. Each locker is 3 ft. high and 12 in. wide by 12 in. deep. Coat hooks and soap tray are provided, and lockers are individually ventilated and heated. The tiled wash-room includes seven shower-cubicles, 13 wash-basins and two foot-baths. Showers are fitted with mixing valves for water temperature regulation. Central heating is supplied by a sectional boiler generating 625,000 B.Th.U.'s per hr. Hot water is provided from a 200-gall. copper calorifier supplying water at 150 deg. F. A stand-by boiler for summer use is inter-conected. A drying room for wet clothes is heated by hot water circulating through the clothes rails. Routine disinfection is carried out daily.

FIG. 1.—LOCKER ACCOMMODATION

FIG. 2.—WASH-BASINS AND SHOWER CUBICLES.

Foundry Layout

The foundry visited comprises three bays—the heavy bay, the roll bay, and a 25-ton bay housing the melting equipment. The heavy one is 260 ft. long by 51 ft., the roll bay 118 ft. by 55 ft., and the melting bay 185 ft. by 55 ft. Melting equipment consists of two pulverised-fuel fired reverberatory air furnaces, top charged, and a Sesci rotating furnace, pulverised-fuel fired, of five tons capacity. The melting bay also houses a gas-fired annealing furnace. In the heavy bay are four cupolas, two of 10 tons and two of 5 tons per hour capacity. An overhead travelling crane lifting 150 tons, two cranes lifting 35 tons each, and one crane lifting 10 tons serve this shop, which is used for the manufacture of heavy-forging-ingot moulds, stamp blocks and larger sizes of rolls and hydraulic rams.

The roll bay has two 25-ton cranes. A wide range of rolls is manufactured. The roll turning and machine shop comprises two bays of a total area of 78,660 sq. ft., and has overhead travelling cranes of 25 tons, 10 tons and 5 tons capacity.

Visitors witnessed the casting of a 70-in. octagonal ingot mould, weighing about 65 tons.

The "Lennox" Sand-Drier

A non-rotary hot-air drier

Several years of research and development work in the laboratories of the Lennox Foundry Company, Limited, Glenville Grove, London, S.E.8, combined with operational experience on a number of full size plants now operating industrially, has resulted in a sand-drier for which are claimed the following advantages:—

(1) Complete absence of large rotating parts; (2) small floor area occupied; (3) extreme simplicity, easily handled by unskilled labour; (4) delivery of cooled dry sand up to 100 feet from "wet" sand intake; (5) high thermal efficiency, bettered by none and equalled by few; (6) low maintenance costs; (7) continuous operation, and (8) adaptable for use with most heating media.

The plant is based on simple aerodynamic and thermogravic principles, and drying is effected in a current of hot air travelling at high velocity through the plant, carying the initially wet sand until it is discharged dry at the required point. Drying, or evaporation of the moisture, takes place by means of direct contact between the sand and the hot air, and no mechanical means is used to maintain the flow of sand through the drier.

The method of operation is simple and can best be understood by reference to Fig. 1. It will be seen that the plant is comprised essentially of ten parts:—(1) Air inlet fan; (2) air heater; (3) wet sand hopper; (4) feeder to introduce wet sand into the column; (5) the column in which drying takes place; (6) a cyclone separator to remove dried sand from the spent air; (7) air outlet fan; (8) cooling conveyor; (9) dry, cooled sand hopper, and (10) exhaust air chimney.

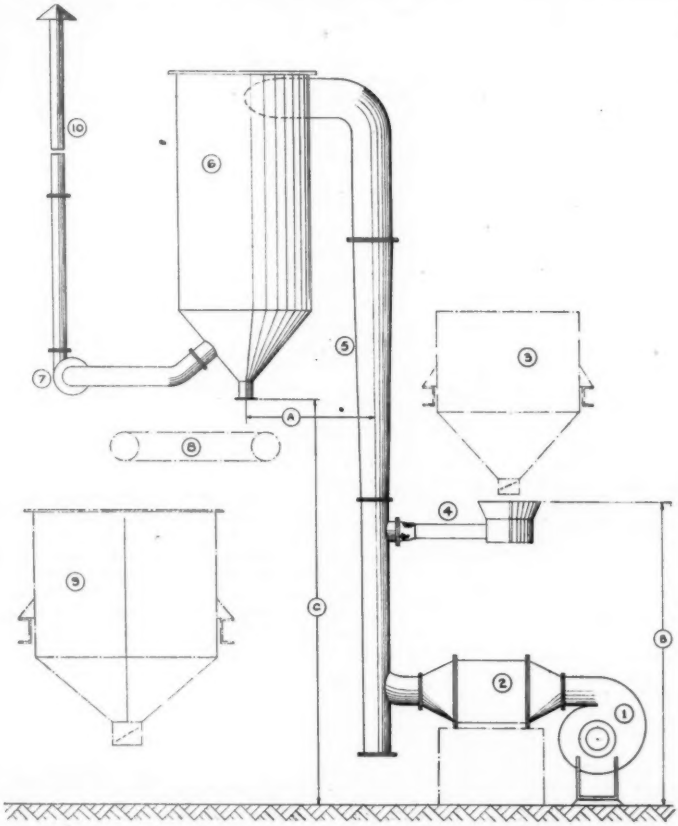

FIG. 1.—LENNOX SAND DRIER.

Air enters the system through the air inlet fan and is blown through the heater and into the vertical drying column. The wet sand on leaving the storage hopper is fed continuously into the hot air stream at the throat of the column where the air is at its highest velocity. It will also be seen that the wet sand here meets the hottest air and evaporation commences immediately.

The section of the column increases progressively and the air velocity is consequently reduced. A point therefore must be reached when each particle of sand is suspended in the air stream. This point being dependent on the weight of the particle under consideration. As drying proceeds, individual particles become lighter and are consequently carried further up the column until, finally, they are borne away in the air streams to the cyclone separator.

The period of suspension is momentary, but during this time violent turbulence exists and serves to break up any lumps of sand which may be present, so that only particle sand is carried over to the separator.

The dried sand is discharged continuously from the separator on to

The "Lennox" Sand Drier

a conveyor where it is finally air cooled and taken to the dry sand storage hopper. The spent air which contains only a very small percentage of fine sand particles can be discharged to a textile bag filter.

The air heater can be fired by steam, coal, coke, oil, gas or electricity so as to obtain the highest possible thermal efficiency and economy of operation. The plant is adaptable and can be arranged to make best use of the accommodation which is available for each individual application. Wear plates are fitted at all points where erosion takes place, thus reducing maintenance costs to a minimum.

TABLE I.—*Sizes for the Lennox Sand Drier*

Model number.	Approximate dimensions.		
	A Minimum.	B Minimum.	C Maximum.
4	1 ft. 9 in.	4 ft. 6 in.	41 ft. 6 in.
5	2 ft. 3 in.	4 ft. 9 in.	40 ft. 9 in.
6	2 ft. 9 in.	5 ft. 0 in.	40 ft. 0 in.
7	3 ft. 3 in.	5 ft. 3 in.	39 ft. 0 in.
8	3 ft. 6 in.	5 ft. 6 in.	38 ft. 0 in.
9	4 ft. 0 in.	5 ft. 9 in.	37 ft. 0 in.

The plant is made in seven standard sizes, see Table I, and is designed to reduce the moisture content of the sand from about 8 to 0.2 per cent. or less. The capacities range from 10 cwts. per hour (No. 4) to 5 tons per hour (No. 10). The former deals with 90 lb. of water per hour, and the latter 900.

New Catalogue

Orderly Carts and Oilskins. A neatly set out leaflet received from George Cohen, Sons & Company, Limited, Wood Lane, London, W.2, describes and illustrates two items of real interest to foundry owners. First there is a line of protective clothing, but not what is usually understood by this term, for the garments listed are oilskins—coats, jackets, leggings, sou'westers, and donkey jackets. Unfortunately, they nearly all require coupons. On the reverse there is described and illustrated an orderly cart. It has a capacity of 3 cub. ft. is furnished with rubber-tyred wheels and carries attachments for the brush and shovel. The use of such a tool by founders will eliminate one more improvisation.

A particular case concerned a casting which was too large to leave adequate sand between it and the moulding box to permit of normal running arrangements, so it was run through the centre core as shown in Fig. 1, in which *A* is the core, *B* the down runner, and *C* the ingates (also shown in Fig. 2), *D* being the casting.

Instead of making this core in one piece, the coremaker made it in halves and subsequently jointed it, a practice which led to the scrapping of a number of castings out of the batch because the pressure of the metal in the runner portion, *B*, caused the joint to open and consequently expanded the central hole in the casting to such an extent that it failed to clean up in machining.

A Core Causes Wasters

By "Coroner"

Oil-sand cores are often made in halves and pasted together before casting, a practice which has little to commend it if a natural core sand is being used, as it is difficult to ensure that the halves are securely jointed and the cores can usually be made just as quickly in one piece.

In some shops, however, most cores are made in halves and a method sometimes adopted to ensure the jointing of natural sand cores is to bind them together by wire—a practice to be deprecated as good results are not always obtained. If the wire be merely placed around the circumference of the core it leaves a recess in the face of the casting, which for some jobs is detrimental, whereas if the wire be partially embedded in the ore it might fuse on to the surface of the casting and, in some cases, be difficult to remove.

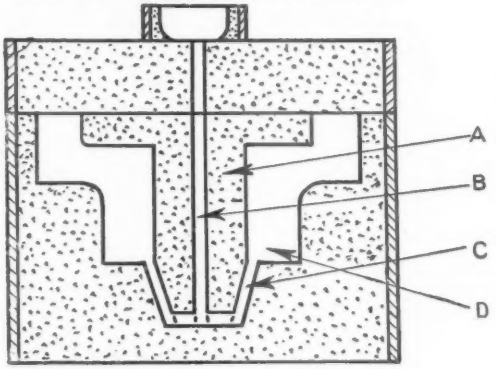

FIG. 1.—MOULD WHICH WAS BOTTOM-RUN THROUGH A CENTRAL CORE.

Cores which can conveniently be made in one piece should never be made in halves as no time is gained, when that for the securing together of the parts is taken into account. Cores which have a fairly large area at one end for standing on for drying should invariably be made as a whole. Another reason why some cores should be made in one piece is that their centre may in special cases be used as the downgate to enable a job to be bottom-run.

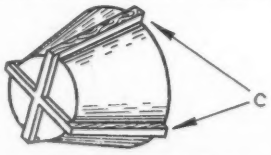

FIG. 2. — PATTERN PIECE, SHOWING THE INGATES.

(*Concluded at foot of col.* 2.)

Obituary

MR. BEN WOOD, who was for 32 years secretary in Sheffield of the National Union of Foundry Workers, died recently at the age of 72.

MR. JAMES GRAY, late secretary of Wm. Simons & Company, Limited, manufacturers of dredging machinery, etc., of Renfrew, died on May 26.

MR. GEORGE BRIGGS, works manager for 16 years of the Langley Barony Fireclay Company, Limited, Langley-on-Tyne, Northumberland, died recently.

MR. R. B. CHARLTON, managing director of R. Blackett Charlton & Company, Limited, non-ferrous founders, of Newcastle-upon-Tyne, has died suddenly, aged 70.

MR. JAMES SMELLIE, who died suddenly on May 27, was managing director of James Smellie, Limited, manufacturers of fireplaces, grates, etc., of Dudley, Worcs. He was 86.

MR. LIONEL LODGE, who was until recently managing director of Lodge-Cottrell, Limited, manufacturers of electrical precipitation plant of Birmingham, and a director of Lodge Plugs, Limited, Rugby, died on May 26. Mr. Lodge, who was 65, was the fourth son of the late Sir Oliver Lodge.

MR. JAMES S. CAIRNS, who has died at Greenock, aged 72, supervised the installation of machinery in the Queen Mary and the Queen Elizabeth during the many years he served as engineer supervisor with John Brown & Company, Limited. He was a former senior surveyor to Lloyd's Register in Glasgow.

MR. WILLIAM S. THOMPSON, a former director of the Caledon Shipbuilding & Engineering Company, Limited, Dundee, died recently. He was the eldest son of the founder of the Caledon yard. Shortly after the dissolution, in 1896, of the family firm of W. B. Thompson & Company, Limited, and the formation in its place of the Caledon Company, Mr. W. S. Thompson assisted his father in the management of the engineering side of the business at Lilybank Foundry. He had full charge after the death of his father in 1923 until the closing down of the foundry 15 years ago. Since then he had not been actively associated with the firm, although he did consultant work.

MR. HENRY LITHGOW, younger brother of Sir James Lithgow, Bt., and a director of Lithgows, Limited, shipbuilders, of Port Glasgow, and the Fairfield Shipbuilding & Engineering Company, Limited, Govan, died on May 28. In addition to his shipbuilding activities, he was chairman of James Dunlop & Company, Limited, and a director of Colvilles, Limited, Gourock Ropeworks Company, Limited, William Beardmore & Company, Limited, Charles Howson & Company, Limited, James Nimmo & Company, Limited, the Lanarkshire Steel Company, Limited, the Steel Company of Scotland, Limited, and Nimmo & Dunlop, Limited, of which he was vice-chairman.

ORDERS FOR 50 locomotives for the Western Region of British Railways have been received by W. G. Bagnall, Limited, Stafford.

Federated Foundries' Progress

The year 1947, compared with the previous year, was one of continued progress and rising outputs, stated Mr. Willam Rennie, chairman, at the annual meeting in Glasgow of Federated Foundries, Limited. There was a substantial increase in turnover in home and export markets, and the consistently heavy demand for products continued, he said. The accounts showed an improved trading position, which was the result of the consistent policy of the board of restricting the amounts paid in dividends and putting back into the business almost all available profits. This policy had enabled the company to finance the large capital expenditure on new plants and amenities recently installed, and these, in turn, had been the main sources of increased production of castings which were in urgent demand and which could not otherwise have been obtained in quantity because of shortage of skilled labour.

Advisory Councils for 1951 Exhibition

Two councils have been appointed to advise the organisers of the Festival of Britain 1951 on the arrangements for the exhibition of science and technology and on the contribution to be made to the festival by architecture, town planning, and building research. The members of the Council for the Exhibition of Science and Technology are:—Sir Alan Barlow (chairman), Sir Wallace Akers, Sir Stanley Angwin, Sir Edward Appleton, Sir Alfred Egerton, Sir John Fryer, Sir William Halcrow, Sir Edward Mellanby, Prof. Andrew Robertson, Sir Edward Salisbury, Sir Frank Smith. The secretary will be Mr. Ian Cox.

Princess Elizabeth, as president of the Royal Society of Arts, presided in London last week at the first meeting of the council of the Festival of Britain.

Consumption of Non-ferrous Metals

Detailed figures of the consumption of non-ferrous metals in the United Kingdom during the first quarter of 1948 have been issued by the Directorate of Non-ferrous Metals. Consumption of virgin metal for the first quarter of 1948, together with the fourth quarter and totals for 1947, was as follows:—

	Fourth quarter, 1947.	Total, 1947.	First quarter, 1948.
	Tons.	Tons.	Tons.
Zinc	62,020	223,212	59,579
Lead	49,346	177,768	48,230
Tin	7,518	27,384	7,159
Cadmium ..	116	498	102
Antimony ..	1,349	5,302	1,332

AT AN EXTRA-ORDINARY MEETING of Crompton Parkinson, Limited, recently, proposals that the authorised capital be increased by £850,000 to £2,850,000 by the creation of 3,400,000 "A" ordinary shares of 5s. each, were approved.

Company News

(Figures for previous year in brackets.)

Rolls-Royce—Dividend of 20% (same).

Thomas Hart—Dividend of 15% (12½%).

Geo. W. King—Dividend of 12½% (same).

Harland & Wolff—Dividend of 7% (same).

Triplex Foundry—Dividend of 10% (7½%).

W. N. Froy & Sons—Dividend of 15% (12½%).

H. & S. (Holdings)—Interim dividend of 2½% (same).

Mirrlees Watson Company—Dividend of 8% (same).

New Broken Hill Consolidated—Dividend of 20% (nil).

Tredegar Iron & Coal Company—Dividend of 5% (9%).

John Hetherington (Holdings)—Dividend of 3.3% (2½%).

Park Gate Iron & Steel Company—Dividend of 10% (same).

Twyfords—Final dividend of 12%, making 15% (same).

Kitchen & Wade—Final dividend of 12½%, making 25% (same).

Eustace Watkins—Final dividend of 30%, making 40% (same).

Metal Closures—Final dividend of 20% making 40% (same).

Albion Drop Forgings Company—Interim dividend of 5% (same).

Milner's Safe Company—Dividend of 7½% (7½% and bonus of 2½%).

Smethwick Drop Forgings—Final dividend of 15%, making 25% (same).

F. H. Lloyd & Company—Final dividend of 7%, making 10% (same).

Allied Ironfounders—Final dividend of 12½%, making 17½% (same).

Scottish Stamping & Engineering Company—Dividend of 10% (same).

Hick, Hargreaves & Company—Final dividend of 8%, making 10% (same).

H.T.A. (formerly Hall Telephone Accessories (1928))—Dividend of 10% same).

Butterley Company—Final dividend of 8½%, making 12% (12% for nine months).

W. G. Frith & Company—Final dividend of 5% (7½%), making 10% (12½%).

John Brown & Company—Final dividend of 9½%, making 12½%, tax free (same).

Meters—Final dividend of 6% (same), making 10% (10% and jubilee bonus of 5%).

Fuller's Earth Union—Final dividend of 11% and bonus of 5%, making 20% (same).

Newman Industries—Final dividend of 12½% and bonus of 2½%, making 22½% (same).

G. Hopkins & Sons—Final dividend of 11½%, making 17½% (same) on increased capital.

British Rola—The dividend on the 6½% preference shares, due on June 30, will not be paid.

Garrard Engineering & Manufacturing Company—Final dividend of 12½%, making 25% (same).

Crompton Parkinson—Interim dividend of 7½% (same). The proposed new shares do not rank for this payment.

Zinc Corporation—Final dividend of 75% (55%), making 100% (75%). Percentage on 10s. percentage paid on £1 ordinary stock, half these rates.

Airscrew Company—Final dividend of 25% (30%), making 40%, less tax (same) and cash bonus of 11d. per 2s. unit, tax free, out of profits realised on the sale of freehold properties (nil).

Staveley Coal & Iron Company—Second interim dividend of 3% (2½%), tax free. It is the directors' present intention that the dividend for the year to June 30, 1948, shall not exceed that of the previous year (12½%).

Spear & Jackson—Profit for 1947, £90,742 (£74,962); to income tax and profits tax, £36,924 (£30,258); depreciation, £8,069 (£7,354); net profit, £45,749 (£37,350); dividend of 15% (same); to reserve, £5,000 (same); forward, £24,329 (£12,330).

Vactric—The directors state that the position of the company does not justify the payment of the preference dividend due on June 1, 1948. An agreement has been reached in principle for the provision of substantial additional working capital.

Sheepbridge Coal & Iron Company—Final dividend of 3%, tax free, on all shares and stock for the nine months to March 31, making 6%, tax free (8%, tax free, for previous 12 months, composed of interim dividend of 3% and final dividend of 5%).

Minimax—Net profit for 1947, after profits tax, £75,664 (£47,197); final dividend of 12%, making 20% (same) and bonus of 5% (same); written off patents and trade marks, £420 (£204); retiring allowances, £9,146 (£1,360); forward, £64,605 (£49,707).

Beyer, Peacock & Company—Net profit for 1947, after depreciation, tax, etc., £56,127 (£42,351); dividend of 5% (same) and bonus of 1% (nil) on increased capital; transfer to general reserve from contingency reserves, £50,000 (same); forward, £42,715 (£15,463).

Chamberlin & Hill—Net profit for the year ended March 31, after tax, depreciation, etc., £21,821 (£17,616); final dividend of 20%, making 30% (same); to general reserve, £5,000 (£2,500); reconstruction and development fund, £9,000 (£615); forward, £16,560 (£14,190).

Alexander, Fergusson & Company—Profit for 1947, after all charges, taxation provision, and additional

reserves and contingencies, £30,486 (£28,079); to depreciation, £5,250 (£5,000); dividend on the "A" and "B" ordinary shares of 24%, tax free (same); forward, £27,058 (£20,547).

Harland Engineering Company—Profit for 1947, after providing for taxation, depreciation and directors' fees, £29,921 (£15,990 after crediting tax recoveries, etc.); from reserves no longer required, £11,134; to general reserve, £6,537 (nil); investments and contingencies, £22,500 (nil); dividend of 7% (same); forward, £16,160 (£18,028).

Fricker's Metal & Chemical Company—Net profit for 1947, after taxation and depreciation, £136,872; to pensions reserve, £10,000; general reserve, £59,000; writing off technical rights and goodwill, £53,700; brought in, £2,839; available net profit, £17,011 (£15,501); dividend of 10% and bonus of 5% (same); forward, £4,349.

Permutit Company—Profit for 1947, after estimated provision for price adjustments and after depreciation, director's fee and taxation, £22,284 (£22,085); to general reserve, £5,000 (nil); written off patents, licences and trade marks, £1,804 (£1,426); dividend of 10% and bonus of 2½% (same on smaller capital); forward, £51,028 (£50,739).

Associated Automatic Machine—Accounts for the nine months ended December 31, 1947, show gross dividend from subsidiary, £23,751 (year to March 31, 1947, £23,731); interest, £64 (£124); fees, £36 (£74); to expenses, £59 (£197); income tax, £10,714 (£10,679); net profit, £13,078 (£13,053); dividend of 6% (same for year); forward, £4,631 (£4,093).

General Engineering Company (Radcliffe)—Trading profit to November 30, £33,035 (£22,576); investments income, £30 (same); to directors' fees, nil (£25); deferred repairs, £3,500 (nil); depreciation, £3,200 (£3,747); E.P.T. and profits tax, £5,000 (nil); income tax, £11,500 (£8,824); general reserve, £2,000 (same); dividend of 20% (same); forward, £14,173 (£13,458).

Automatic Telephone & Electric Company—Net profit for 1947, after E.P.T., profits tax, depreciation, etc., £341,391 (£238,571); to income tax, £214,453 (£131,562); general revenue reserve, £32,000 (nil); ordinary dividend of 10% (same) and bonus of 2½% (same); deferred dividend of 10% (same) and bonus of 2½% (same); forward, £193,797 (£178,360).

Metal Agencies Company—Profit for the year ended February 29, after depreciation, etc., £169,823 (£137,255); profit on sale of investments, £2,250 (£669); to tax, £97,791 (£76,147); directors' fees, £800 (£300); staff superannuation account, £5,000 (£4,000); general reserve, £20,000 (same); final dividend of 30%, making 40%, £28,716 (£26,125); forward, £36,833 (£20,917).

Veritys—Trading profit for 1947, £31,258 (£2,278) including £15,341 relating to previous years; transfer from contingencies reserve, £10,000 (nil); to bank charges, £1,283 (£455); directors' fees, £250 (same); depreciation, £10,000 (£8,000); tax, £8,000 (£1,213); profit, £21,725 (loss £7,640); to general reserve, £10,000 (nil); dividend of 5% (2½%); forward, £13,194 (£6,419).

Glenfield & Kennedy—Aggregate net profit attributable to the group for the year ended March 31, after depreciation and taxation, £172,185 (£109,610); net profit, including results of subsidiary companies to extent to which dividends have been declared, £139,511 (£100,296); to general reserve, £50,000 (£20,000); dividend and bonus of 20% (same); forward, £49,956 (£46,070).

Ransomes & Rapier—Trading balance, etc., for 1947, £212,044 (£177,476); to maintenance and depreciation, £61,299 (£48,415); debenture interest, fees, etc., £9,744 (£14,450); pensions and bonus to employees, £31,566 (£31,112); taxation, £60,608 (£35,833); net profit, £48,827 (£47,666); credit from revaluation of loose tools, etc., £4,374 (nil); to special depreciation, nil (£7,000); reserve, £22,500 (£15,000); final dividend of 5%, tax free, making 7%, tax free (same); forward, £4,171 (£3,098).

G. Beaton & Son—Trading profit for 1947, £23,342 (£8,179 loss); subsidiary dividend, nil (£2,591); interest, £19 (£84); fees, £32 (£85); E.P.T. recoverable, nil (£26,000); to depreciation, £8,167 (£9,147); directors' fees. £923 (£1,000); tax, £5,250 (£8,500); net profit, £9,053 (£1,934); tax reserve no longer required, £10,648 (nil); transferred from contingencies reserve, nil (£3,500); to general reserve, £6,000 (nil); contingencies reserve, £6,000 (nil); dividend 10% (same); forward, £3,354 (£1,153).

Harrison (Birmingham)—Profit for 1947, including income from investments, £133,014 (£133,839); to directors' fees, £500 (same); pension fund, £500 (same); balance, £132,014 (£132,839); adjustments in respect of previous years, nil (£3,126); surplus on sale of plant, £188 (£1,158); war damage interest, £170 (nil); to general reserve, £15,000 (£35,000); metal stock reserve, £20,000 (£25,000); pension reserve, £25,000 (£15,000); dividend of 25%, tax free (same); forward, £149,487 (£124,140 after profits tax provision of £619).

Scammell Lorries—Trading profit for 1947, including discounts and interest, £264,995 (£162,856); fees, £109 (£123); to directors' fees, £2,627 (£1,319); depreciation, £12,422 (£10,208); employees' pension scheme, £8,237 (nil); interest on bank overdraft, nil (£399); interest on 5½% notes, nil (£2,375); net profit, £24,818 (£148,678); to tax, £125,340 (£96,727); reserve for pensions, £30,000 (£10,000); stock reserve, £30,000 (nil); general reserve, £20,000 (£18,000); preference dividend, £3,712 (£2,630); ordinary dividend of 10% (same); forward, £43,976 (£28,950).

Sydney S. Bird & Sons—Trading profit of company and wholly-owned subsidiaries for 1947, £55,254 (£34,794 after E.P.T. for parent company); to directors' fees, £1,300 (£900 for parent company); depreciation, £6,140 (£3,314); written off goodwill, £277 (nil); written off formation expenses, £136 (nil); profits tax, £7,800 (nil); income tax, £18,932 (£15,000); profits retained by subsidiaries, £121; balance to parent company, £20,548 (£15,580); dividend on increased capital 30% (same); general reserve, £10,000 (same); benevolent fund, £1,000 (nil); forward, £9,392 (£10,379).

Siemens Bros.—Trading profit for 1947, including approximately £150,000 in respect of previous years,

£408,645 (£117,966); income from subsidiaries. £305,676 (£202,541); income from investments, £33,503 (£52,172); E.P.T. recoverable, nil (£410,000); to directors' fees, £3,549 (£3,826); tax, £270,284 (£200,000); depreciation, £129,240 (£123,965); deferred repairs, nil (£90,000); net profit, £344,751 (£364,888); from tax reserves not required, £45,000 (£70,000); to contingencies, £135,000 (£140,000); preference dividends, £66,960 (£55,000); ordinary dividend of 7½% (same); forward, £702,320 (£698,279).

Douglas (Kingswood) (formerly Aero Engines)—Loss on trading for 1947, after provision for depreciation of fixed assets, £158,981; interest and bank charges, £19,860; directors' fees, £983; making debit, £179,824; depreciation of stock and development expenses, £297,831; investment in associated company written down, £20,199; investment in subsidiary written down, £1; new capital issue expenses written off, £14,649; net loss, £512,504; credit balance brought in, £41,471; debit balance carried forward, £471,033. Comparative figures for 1946 have not been given as these, the directors state, would not be significant.

Mellor, Bromley & Company—Trading profit, after expenses, profits tax and directors' remuneration to February 28, 1948, £176,192 (£132,633); interest, £1,184 (£3,321); to depreciation, £21,544 (£11,367); directors' fees, £268 (£2,420); employees' pension scheme, £4,463 (£4,323); superannuation fund, £1,000 (same); tax, £56,593 (£51,105); subsidiary preference dividend, £512 (same); less retained by subsidiary companies, £19,360 (£32,520); net profit, £73,636 (£32,707); to preference dividend, £3,932 (same); final ordinary dividend of 36½%, making 54% on 1s. shares (10% on £1 shares), £44,550 (£8,250); reserve, £15,000 (£5,000); forward, £71,781 (£61,627).

W. T. Henley's Telegraph Works—Balance of trading account for 1947, £1,352,091 (£770,829); dividends and interest, £114,032 (£98,316); profit on realisation of a subsidiary company, £50,150 (nil); to directors' fees, £8,750 (same); auditors' fees, £1,800 (same); depreciation, £90,018 (£94,973); U.K. taxation, £649,212 (£432,069); net profit, £716,343 (£331,553); to post-war contingencies reserve, £175,000 (£75,000); educational reserve, £20,000 (nil); depreciation and obsolescence of buildings, machinery and plant, £60,000 (nil); provision for fluctuation in prices of materials, £67,000 (£78,000); staff pensions, £100,000 (£10,000); final dividend of 10% and bonus of 5%, making 20% (same); forward, £610,365 (£413,822).

Iron Trades Employers' Insurance Association—Premium income (less re-insurances) for 1947, £3,846,024; surplus, after making full provision for claims, etc., £1,252,389; to premium return fund, £765,264; bonus fund, £108,736; staff trust fund, £50,000; written off expenditure on furniture, etc., £5,151; written off from cost of freehold and leasehold premises, £20,500; general reserve fund, £200,000; catastrophe reserve fund, £150,000; forward, £72,640 (£119,902). The directors recommend that a return of 20% of the Workmen's Compensation premium paid for 1947, together with a bonus of 3% on which tax has already been paid, making a total return of 23%, be made to the present policyholders.

British Vacuum Cleaner & Engineering Company—Trading balance to September 30, 1947, after general expenses, bad and doubtful debts, £93,528 (£81,630); profit on sale investments, £3,816 (nil); profit on sale property, £6,988 (nil); fees, £53 (£61); from tax reserve, £20,000 (£22,000); subsidiaries' dividends, £2,881 (£18,552); investments interest, £870 (£618); to bank interest, £13,475 (£9,910); directors' fees, £1,050 (same); tax, £17,573 (£19,918); national defence contribution, £2,536 (£1,586); depreciation, £20,000 (£45,392); net profit, £73,502 (£45,005); to pensions reserve, £5,000 (nil); income and profits tax reserve, £36,000 (£24,000); dividends on preference, £4,537 (£4,331); ordinary dividend of 20% (same); forward, £26,297 (£14,832).

John Thompson (formerly John Thompson Engineering Company)—Trading profit for 1947, £62,025 (loss £25,827); decrease in reserve for deferred repairs, £5,927 (£3,000); other income, £6,950 (£3,333); subsidiaries' dividends, £144,393 (£88,639); E.P.T. and income tax credit, £2,361 (net tax credit £72,000); directors' fees, depreciation and pensions, £34,264 (£19,269); E.P.T., £10,000 (nil); income tax, £6,500 (nil); profits tax, £6,500 (nil); net profit, £164,392 (£121,876); profit on realisation of investments and sale of rights, £5,420 (£5,872); to expenses of capital issue, nil (£2,200); dividend of 17½% and bonus of 5% (same); investment reserve, £26,000 (nil); general reserve, £50,000 (£35,000); dividend reserve, £15,000 (same); forward, £57,227 (£55,506).

Ransomes, Sims & Jefferies—Trading profit of company and wholly-owned subsidiary companies for 1947, after depreciation and deferred repairs, £409,017 (£473,322 before E.P.T.); dividends and interest on investments, £4,239 (£823); to directors' fees, £2,075 (£1,625); debenture interest, £11,250 (same); profits tax, £53,000 (E.P.T. £195,000); income tax, £156,170 (£112,558); profits retained in subsidiary companies, £11,026 (nil); net profit of parent company, £179,735 (£153,712); dividend of 7½% (for 1946 the dividend was at the same rate, but the new ordinary capital of £250,000 only ranked for dividend for four months); to stock contingencies reserve, £58,674 (£69,410); pensions, £25,000 (same); plant reserve, £45,000 (£30,000 contingencies); forward, £77,397 (£63,323).

A.D.A. Research Scholarships

The Institution of Naval Architects announces that a research scholarship of the value of £400 per annum and tenable for two years has been offered by the Aluminium Development Association to encourage and facilitate research in the application of light alloys to ship construction. The scholarship will be administered by a committee of the Institution of Naval Architects, and it is hoped to make the award in September, 1948. Full particulars of entry, which closes on July 31, can be obtained from the Secretary, Institution of Naval Architects, 10, Upper Belgrave Street, London, S.W.1.

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THE STANTON IRONWORKS COMPANY LIMITED NEAR NOTTINGHAM

News in Brief

THE PRICES OF Osram fluorescent lamps, both daylight and warm white colours, have been reduced.

THE PATERSON-HUGHES ENGINEERING COMPANY, LIMITED, Glasgow, is shortly to open a branch at 30, Horse Fair, Birmingham.

THE MANCHESTER branch office of the British Aluminium Company, Limited, is now at 46, Fountain Street. The telephone number is unchanged.

DUNDEE HARBOUR BOARD has ordered a £146,000 Tay ferryboat from the Caledon Shipbuilding & Engineering Company, Limited, Dundee.

THE STAVELEY COAL & IRON COMPANY, LIMITED, has acquired the whole of the share capital of the Birmingham Chemical Company, Limited, Lichfield.

COLEMAN FOUNDRY EQUIPMENT COMPANY, LIMITED, Stotfold, Beds, has opened a Birmingham office at 28, Martineau Street (telephone: Midland 0986). The office will be under the direction of Mr. H. W. Adams.

THE MINISTRY OF SUPPLY announces that further allocations of tin metal have been made by the Combined Tin Committee for the first half of 1948 to Greece (75 long tons) and to Turkey (an additional 200 long tons).

THE CONTROL COMMISSION in Germany recently issued the following foundry production figures for April in the British zone:—Pig-iron, 281,870 tons; steel castings, 5,918 tons; ironfoundry, 38,717 tons; malleable foundry, 2,826 tons.

THE FIRST EXHIBITION of the work of Royal Designers for Industry will be held at Burlington House, Piccadilly, London, next October. It is being organised jointly by the Royal Society of Arts and the Council of Industrial Design.

THE WORKS OF Bruce Peebles & Company, Limited, manufacturing electrical engineers of Edinburgh, will be closed for a week from July 3 for the annual trades holiday. No goods will be received or despatched during the holiday period.

THE OBJECTION OF Doncaster Rural District Council to the building by Mr. G. E. Bayliss, of St. Annes Road, Doncaster, of an ironfoundry in Anchorage Lane, Sprotborough, has been upheld by the Minister of Town and Country Planning, after an appeal by Mr. Bayliss.

THE HOLLOW-WARE WAGES COUNCIL (GREAT BRITAIN) is to submit to the Minister of Labour proposals for the amendment of the Hollow-ware Wages Council (Great Britain) Wages Regulation (Holidays) Order, 1946 (Order H. (48)), relating to holidays with pay, by varying the qualification for entitlement to a customary holiday.

CHURCHILL-REDMAN, LIMITED, Halifax and Newcastle-upon-Tyne, are, of course, manufacturers of machine tools and the proprietors of the Longfield Foundry, Halifax, which is confined to the production of iron castings for machine tools. In last week's issue we inadvertently described the company as being iron and brass founders.

A NEW COMPANY has been formed called Foundry Film Services, 29, Wyvery Road, Purley, Surrey. It is being organised by Mr. Frank Hudson and managed by his eldest son. It is already assured of the close co-operation of several of the most prominent iron and non-ferrous castings manufacturers, and of some of the employers' associations.

THE COUNCIL of the Royal Society of Arts is this year extending its industrial art bursaries competition, and now offers travelling scholarships, valued at £150 each, for designs in the domestic solid-fuel-burning appliances industry and other trades. Details can be obtained from the secretary of the Society, 6-8, John Adam Street, Adelphi, London, W.C.2.

MR. HAROLD WHITEHEAD, chairman of Douglas (Kingswood), Limited (formerly known as Aero Engines, Limited), states that it is the board's intention to propose a capital reconstruction as soon as the company is making profits and the final amount of the deficiency can be measured. Details of the company's financial report for 1947 are printed on page 568.

SANDERSON BROS. & NEWBOULD, LIMITED, Sheffield, intends to proceed with plans for extension and modernisation of plant and lay-out. The installation has been completed of another high-frequency furnace to supplement the output of high-grade steel ingots. Additions and improvements of the heat-treatment plants are being continued with the object of further increasing the production of high-grade strip.

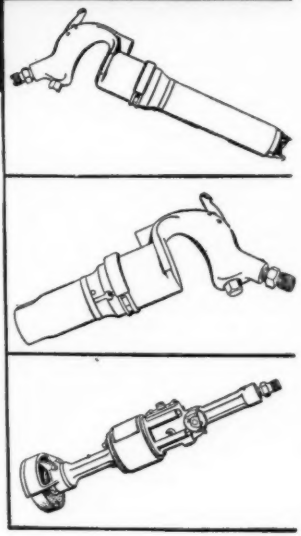
MR. J. J. GRACIE, general manager of the General Electric Company, Limited, Witton, was appointed chairman of an Executive Committee appointed at the inaugural conference of the Midland Advisory Council on Industrial Productivity recently. The Committee is to choose and direct investigations on industrial problems and examine means of increasing production in basic industries of importance to export trade.

THE BRUSH ELECTRICAL ENGINEERING COMPANY, LIMITED, and its associated companies, Mirrlees, Bickerton & Day, Limited, and J. & H. McLaren, Limited, have signed contracts to the value of £2,000,000 and are expecting to sign, shortly, further contracts valued at over £1,000,000 for the supply to Russia of Diesel engines, Diesel electric generating sets and ancillary equipment. Substantial deliveries have already been made on these contracts.

Thos. Firth & John Brown

The directors of Thos. Firth & John Brown, Limited, announce that they have recently undertaken the segregation from their general assets of those specifically employed in the production of iron and steel. The board adds that Firth-Brown Steels, Limited, was formed for the purpose of acquiring these assets, the management of which will continue in the hands of Thos. Firth & John Brown, Limited.

World famous for their Riveting hammers, Holmans also produce a range of pneumatic tools. **Riveting Hammers.** The "X" series has long been the first choice for medium work. Now the "ER" group has been added to the range: the ER's are heavy duty tools capable of closing cup rivets of all sizes up to 1⅜ in. **Chipping & Caulking Hammers.** These are tools that all operators like to use and the full range enables the right tool to be used for the right job. The Throttle Valve gives full control of weight of strike from light taps to full force blows. The adjustable Exhaust Deflector and the sensible grip make for comfortable working. **Grinding & Fettling Tools.** The Rotogrind series gives a choice of tools with a wide variety of application. 0/1 is the high speed job. Its weight is 4 lbs. all on and it will rev up to 16,000 P.M. Its light weight makes it a first-class tool for such delicate jobs as die dressing and its power and speed make it suitable for much general purpose work. Sizes 2 and 4 will take any grinding or fettling work that comes their way, their power/weight ratio is very high and they are the ideal tools to carry fast cutting wheels.



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Personal

MR. W. E. BALLARD has been elected president of Birmingham Metallurgical Society.

MR. J. LLOYD BENTLEY, until lately associated with the Wolsingham Steel Company, Limited, has been appointed manager of "Wilson's" Forge (1929), Limited, Bishop Auckland.

MR. MAURICE GOLDSTONE and MR. HERBERT HARTLEY have been appointed additional directors of Ward & Goldstone, Limited, manufacturers of electrical equipment, etc., of Salford, Lancs.

SIR EDWARD APPLETON, secretary of the Department of Scientific and Industrial Research and a Nobel Prize winner last year, has been appointed by the Pope to the Pontifical Academy of Science.

MR. J. H. CASS, for 31 years head foreman with John Readhead & Sons, Limited, shipbuilders, engineers, etc., of South Shields, has received a presentation to mark his completion of 50 years' service.

DR. J. G. SLATIN, until recently scientific adviser to the British Admiralty Delegation, Washington, U.S.A., has now been appointed Director of Operational Research to the Admiralty in London.

DR. J. M. MCNEILL and MR. E. MENSFORTH have been elected directors of John Brown & Company, Limited. Dr. McNeill has also been appointed deputy managing director at the company's Clydebank yard.

MR. J. P. CRANMER has been appointed engineer, Midlands area, for the British Thomson-Houston Company, Limited, having been transferred from the Willesden works to the B.T.-H. Birmingham district office.

MR. FRANK BARRINGTON HOOPER has been appointed a director of Industrial Newspapers, Limited, proprietors of THE FOUNDRY TRADE JOURNAL. He retains his position as commercial manager of the company.

MR. S. T. JAZWINSKI has been appointed vice-president in charge of operations of the Detroit Steel Casting Company. He is retaining his present position with the Sheffield Iron & Steel Company, Limited.

MR. F. WOODIFIELD, a director and works manager of the Park Gate Iron & Steel Company, Limited, Rotherham, and president of the Iron and Steel Trades Employers' Association, sailed for New York last Saturday *en route* for San Francisco, where he will attend the International Labour Conference as one of the advisers appointed by the British Employers' Confederation.

MR. H. D. COOK, a former director of Lodge-Cottrell, Limited, manufacturers of electrical precipitation plant, of Birmingham, has succeeded the late Mr. Lionel Lodge as managing director. MR. J. O. BOVING (chairman) and VISCOUNT MARCHWOOD have decided to resign from the board in order to leave room for younger men. MR. T. KIRKHAM, vice-chairman of Ericsson Telephones, Limited, has been appointed as the new chairman, and MR. D. H. RICHARDS, who has been chief engineer of the company for some 18 years, has been elected to the board.

MR. R. A. IDDON, senior planning engineer in the medium-plate shops of G. A. Harvey (London), Limited, has been awarded by the council of the Institute of Welding the prize in the competition for the design of a work-piece. His design is for a welded box to be tested to destruction under hydraulic pressure. It was selected by the judges from 24 designs submitted by members of the Institute as the simplest and best work-piece for use in a later competition in welding craftsmanship. The prize fund was provided by Braithwaite & Company Structural, Limited.

MR. J. N. STEPHENS, who has retired from his position as assistant to the chairman of Associated Electrical Industries, Limited, has received a presentation from the directors and principal officials of the group. When A.E.I., Limited, was formed in 1928, Mr. Stephens was engaged in reorganisation duties, and two years later was appointed personal assistant to Sir Felix Pole, the chairman. He was made a director of the Edison Swan Electric Company, Limited, in 1932, in 1939 managing director of the Electrical Manufacturers Finance Company, Limited, and in 1943 a director of the Hotpoint Electric Appliance Company, Limited. Mr. Stephens was responsible for the formation of the Electrical Accessories Manufacturers' Association (now merged in B.E.A.M.A.), and he was the first chairman of the Electric Light Fittings Association.

Wills

TATE, J. R., of Harwood, near Bolton, brassfounder ... £11,207

STEWART, J. A., managing director of J. A. Stewart (Plant), Limited, Glasgow £19,093

DAVIES, JOHN, joint founder of E. Davies (Atlas Foundry), Limited, Shrewsbury £25,854

GREEN, G. H., late of Adams & Richards, iron and steel stockholders, of Wednesbury, Staffs £9,717

BLENCOWE, A. C., of Kidderminster, office manager at the Wilden Works, Stourport, of Richard Thomas & Baldwins, Limited £2,780

HUNT, C. H., of Stalbridge, Dorset, formerly of A. H. Hunt, Limited, manufacturers of fixed capacitors, of Wandsworth, London, S.W.18 ... ... £334,969

PALMER, T. C., of Hove, formerly a director of W. J. Fraser & Company, Limited, manufacturing chemical engineers, of Dagenham £46,657

GILBERTSON, C. F., a director of Richard Thomas & Baldwins, Limited, Gravesend Steel & Tinplate Company, Limited, and the Morriston Silica Brick Company (1929), Limited £23,004

FOOT, COMM. C. M., late steel inspector with Thos. Firth & John Brown, Limited, Sheffield, formerly with the Stocksbridge Works of Samuel Fox & Company, Limited, and at one time with Vickers, Limited £1,084

DAVIS, C. G., deputy chairman and a managing director of Radiation, Limited, Birmingham, chairman and managing director of the Davis Gas Stove Company, Limited, Luton, chairman of the Diamond Foundry Company, Limited, Luton, and other companies £138,141

SHARPLEY, G. R., chairman and a former managing director of Ruston & Hornsby, Limited, chairman of Davey, Paxman & Company, Limited, engineers, ironfounders, etc., of Colchester, vice-chairman of Ruston-Bucyrus, Limited, Lincoln, a director of Ransomes, Sims & Jefferies, Limited, engineers and ironfounders, etc., of Ipswich, and of Ruston & Hornsby (Proprietary), Limited, Australia £79,186

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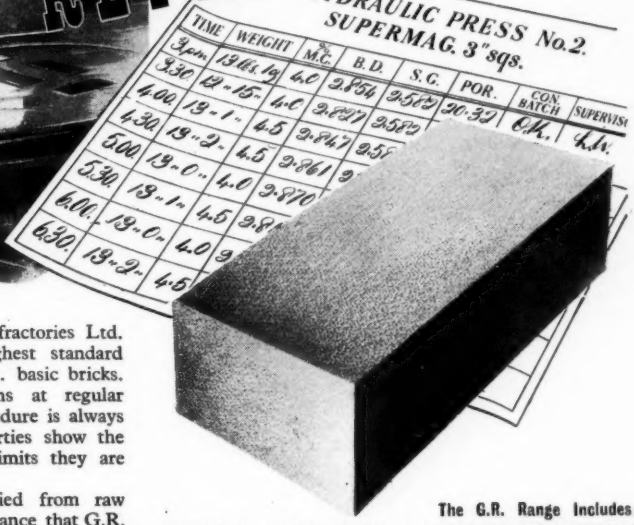

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Raw Material Markets

Iron and Steel

The long-continued complaints of scanty deliveries of pig-iron to the foundries tend to obscure the fact that the aggregate output of the blast furnaces has reached the highest figure for over a quarter of a century. The requirements of the steel plants, however, are so unprecedented that supplies to the foundries have still to be strictly rationed. It is high-phosphorus iron, the raw material of the light-castings trade, which is in really short supply, and the best that producers can do is to distribute available tonnages as equitably as possible under the licensing system. The need for bigger outputs of low- and medium-phosphorus iron is also indicated, but where these grades are scarce, the engineering and speciality foundries can usually make do with refined iron or hematite. Happily, the foundries are getting increased deliveries of coke and heavy production programmes include a considerable volume of export orders.

Thanks mainly to Belgian contributions, the intake of semi-finished steel from overseas sources is gradually—but only very gradually—increasing. Imports, however, are still well below last year's figures and in volume are only about one-third of the corresponding tonnages in 1938. Thus the main burden of meeting the enormously increased requirements of the re-rolling industry rests upon British steelmakers. Deliveries of home-produced slabs, blooms and billets have been raised to impressive proportions, but the improvement is chiefly confined to the heavy sizes, and small square and flat billets are not yet available in the tonnages required. Pressure for sheet bars also is unabated.

The export of finished steel products is now being more closely canalised under various trade agreements negotiated through Governmental channels. But the volume of exports does not increase and the retention of the bulk of the output for home consumption still leaves a large unsatisfied demand. Hence the Government is now preaching the gospel of strict economy in the use of steel and is able to enforce that doctrine to some extent by a strict supervision of the official allocations. These, of course, are open to criticism, but they are as generous as circumstances permit. Shipbuilders claim that an industry of such high importance should have more liberal treatment, but there are many other vital industries in need of plates, angles, etc.

Non-ferrous Metals

The extent of the rise in tin, £50 per ton, came as an unpleasant shock to users of this metal. Traders are asking "Why £50?" and the query is pertinent. But one of the drawbacks to the scheme of bulk purchasing is the somewhat lighthearted way in which values of commodities are moved. It need not be doubted that when the seller's market is finally past and quotations begin to fall, the downward adjustments in price will be every whit as spectacular as the upward trends. Prices of gunmetal castings, etc., have all been increased in line with the rise in tin metal, but tin-bearing scrap has been slow to respond, probably because holders feel that their prospective customers cannot be tempted to buy at a higher level. Although the Ministry of Supply can increase the price of virgin tin by £50, secure in the knowledge that the trade has no option but to pay this inflated figure of £569 per ton, the scrap merchant does not enjoy a monopoly and must keep the value of his product at a level which will attract buyers.

April copper statistics, published by the British Non-ferrous Metals Federation, show a considerable advance in the consumption of virgin metal over the March figure, but a decline in scrap usage. The figures for primary copper exceed by some 3,000 tons the prescribed upper limit of 30,000 tons set by the Control. Consumption of virgin copper was 33,091 tons, against 28,948 tons in March and consumption of copper and alloy scrap (copper content) was 15,585 tons, compared with 18,142 tons for the previous month. These figures are good and certainly do not suggest any decline in activity in the non-ferrous industry. It is reported, however, that, with one or two exceptions, there has been a modest setback in the volume of orders reaching the fabricators and, if this trend continues, there can be little doubt that usage of copper in the United Kingdom will fall further. Demand for zinc is good and supplies are improving.

Contracts Open

The dates given are the latest on which tenders will be accepted. The address is that from which forms of tender may be obtained.

Aycliffe, June 21—Approx. 5,000 yds. of cast-iron, concrete and stoneware pipes, etc., for the Development Corporation. D. Balfour & Sons, consulting engineers, 131, Victoria Street, Westminster, London, S.W.1. (Deposit £10, returnable.)

Godalming, June 26—Supplying, laying and jointing new water mains, for the Corporation. Mr. C. B. Spivey, water engineer, Municipal Buildings, Bridge Street, Godalming. (Fee £2 2s., returnable.)

High Wycombe, June 21—Construction of about 2,900 yds. of 33-in. to 6-in. cast-iron, concrete and stoneware pipe surface water drains and sewers, manholes, ventilators, etc., for the Rural District Council. D. Balfour & Sons, consulting engineers, 131, Victoria Street, Westminster, London, S.W.1. (Fee £5, returnable.)

Sunderland, June 25—Sanitary fittings, fireplaces, etc., for the Corporation. The Borough Engineer's Office, Athanæum Buildings, 27, Fawcett Street, Sunderland. (Deposit £2 2s., returnable.)

LT.-COL. S. M. TATE, assistant managing director of Tube Investments, Limited, and a director of the Chesterfield Tube Company, Limited, has been bereaved by the death in Canada, as the result of an accident, of his wife. Col. and Mrs. Tate flew to Canada last month on a combined business and pleasure trip.